Final

Groundwater Monitoring Report
March 2006 Monitoring Round 23

for

Former Marine Corps Air Station El Toro
Irvine, California

Prepared for:

Base Realignment and Closure
Program Management Office West
1455 Frazee Rd. Suite 900
San Diego, CA 92108

Prepared by:

CDM Federal Programs Corporation
9444 Farnham Street, Suite 210
San Diego, California 92123

Prepared under:

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CDM
9444 Farnham Street - Suite 210
San Diego, California 92123
tel: 858 268-3383
fax: 858 268-9677

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Mr. Glenn Christensen
Base Realignment and Closure
Program Management Office West
1455 Frazee Road, Suite 900
San Diego, CA 92108-4310

Subject: Navy Contract No. N68711-00-D-0004, Delivery Order 0084
Multimedia Environmental Compliance
Final Groundwater Monitoring Report, March 2006, Monitoring Round 23,
Former MCAS El Toro, Irvine, California

Dear Mr. Christensen:

Enclosed for your distribution are two copies of the Final Groundwater Monitoring Report for the March 2006 Monitoring Round 23, Former MCAS El Toro, Irvine, California. Nine copies have distributed to the BCT and other interested parties under the Navy's cover letter date 27 September 2006. Two bound copies and one unbound copy have been sent directly to Ms. Diane Silva for the Administrative Record and one additional copy will be delivered to Ms. Marge Flesch at Former MCAS El Toro.

If you have any questions please call me at (858) 268-3383.

Sincerely,

Larry Davidson

Larry Davidson, P.E.
Program Manager
CDM Federal Programs Corporation

c: G. Tinker, NAVFAC Southwest
D. Silva, NAVFAC Southwest
M. Flesch, MCAS El Toro
M. Higman
File

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Former Marine Corps Air Station El Toro
Irvine, California

U.S. Navy Contract Number N68711-00-D-0004
Delivery Order 084

Prepared by: ______________________ 9/26/06
for Dave Lange
CDM Federal Programs Corporation
Environmental Scientist
Date

Approved by: Larry Davidson 9/26/06
Larry Davidson, P.E.
CDM Federal Programs Corporation
Program Manager
Date

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Executive Summary

This groundwater monitoring report presents the results of sampling and groundwater level measurements conducted during March 2006 at the Former Marine Corps Air Station (MCAS) El Toro, California (herein referred to as "Former MCAS El Toro"). This is the 23rd groundwater monitoring event (Round 23) conducted at the Former MCAS El Toro since 1992. CDM Federal Programs Corporation (CDM) conducted Round 23 groundwater monitoring activities for the United States Department of the Navy (DON), Naval Facilities Engineering Command (NAVFAC) Southwest.

The groundwater monitoring program currently includes semi-annual sampling of wells at Installation Restoration Program (IRP) Sites 1, 2, 3, 5, and 17. IRP Sites 16, 18, and 24 were removed from the scope of this groundwater monitoring program prior to the Round 23 sampling event and are currently being monitored under site-specific remedial designs. Monitoring wells in the current sampling program were selected in order to provide data to document conditions at these sites and for use in the evaluation of trends in contaminant concentrations and groundwater elevations. Groundwater level measurements and samples were collected from 19 monitoring wells during Round 23.

Groundwater samples from all 19 monitoring wells were analyzed for volatile organic compounds (VOCs), the primary contaminants of concern (COC). Samples from selected monitoring wells were also analyzed for radionuclides, metals, perchlorates, and general chemistry parameters. Key findings from groundwater sampling activities and data evaluation during Round 23 are summarized below:

IRP Site 1

One IRP Site 1 monitoring well was sampled during Round 23. VOCs were not detected in samples collected from 01_MW201. Perchlorate was detected at a concentration of 376 micrograms per liter (μg/L), which exceeded the current DON level of concern of 24 μg/L (DON 2006).

IRP Site 2

Seven IRP Site 2 monitoring wells were sampled during Round 23. Tetrachloroethene (PCE) was detected in monitoring wells 02NEW7 and 02NEW8A at concentrations of 0.9J and 8 μg/L, respectively. Trichloroethene (TCE) was detected in well 02NEW7 at a concentration of 32 μg/L, which exceeds the maximum concentration (8 μg/L) from previous sampling rounds. The maximum contaminant level (MCL) for both TCE and PCE in drinking water is 5 μg/L (EPA 2003). Concentration trends of the detected analytes will continue to be monitored and evaluated in future sampling rounds.

IRP Site 3

Five IRP Site 3 monitoring wells were sampled during Round 23. No significant changes in contaminant concentrations occurred in IRP Site 3 samples. Monitoring well 04_DGMW66A contained benzene at a concentration of 1 μg/L, which equals the state and federal MCL (EPA 2003). The concentration trend of benzene will continue to be monitored and evaluated in future rounds.

IRP Site 5

Four IRP Site 5 monitoring wells were sampled during Round 23. VOCs were not detected at concentrations that exceeded MCLs in any samples collected from IRP Site 5.

IRP Site 17

Two IRP Site 17 monitoring wells were sampled during Round 23. 17NEW1 and 17_DGMW82 continue to exhibit elevated total dissolved solids (TDS) concentrations of 860 and 676 milligrams per liter (mg/L), respectively. The secondary MCL for TDS in drinking water is 500 mg/L (EPA 2003). VOCs were not reported at concentrations exceeding MCLs.

Recommendations

The following recommendations are made for current monitoring wells in the groundwater monitoring program:

- Well 17_NEW1 has been recommended for redevelopment since Round 21 (March 2005), but redevelopment has not been performed due to access issues. Overgrown vegetation precludes access with development equipment. It is recommended that 17_NEW1 continue to be monitored with current turbidity conditions until redevelopment can be performed once appropriate vegetative clearance activities have been performed.
- 17_DGMW82 is recommended for redevelopment due to sustained elevated TDS measurements since 1993. In addition, redevelopment is recommended to improve groundwater recovery and increase sampling volume.

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Acronyms and Abbreviations

amsl	above mean sea level
APCL	Applied P & Ch Laboratory
BCT	Base Realignment and Closure Cleanup Team
BNI	Bechtel National Inc.
BRAC	Base Realignment and Closure
°C	degrees Celsius
CDM	CDM Federal Programs Corporation
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLEAN	Comprehensive Long-Term Environmental Action Navy
CLP	(EPA) Contract Laboratory Program
COC	chain of custody
COPC	chemical of potential concern
DO	dissolved oxygen
DON	Department of the Navy
DOT	Department of Transportation
DVR	data validation report
EPA	United States Environmental Protection Agency
°F	degrees fahrenheit
FAA	Federal Aviation Administration
FBI	Federal Bureau of Investigation
FS	feasibility study
ft	feet
ft/ft	feet/foot
GMP	groundwater monitoring plan
gpm	gallons per minute
IC	institutional controls
ID	identification
IRP	Installation Restoration Program
IRWD	Irvine Ranch Water District
J	estimated value (data qualifier)
JEG	Jacobs Engineering Group Inc.
MCAS	Marine Corps Air Station
MCL	maximum contaminant level
µg/L	micrograms per liter

mg/L	milligrams per liter
mL	milliliter
mL/min	milliliters per minute
MNA	monitored natural attenuation
MS	matrix spike
MSD	matrix spike duplicate
NA	not applicable
NAVFAC	Naval Facilities Engineering Command
ND	not detected
NFA	no further action
NM	not measured
NPL	national priority list
NR	not reported
NS	not sampled
NTU	nephelometric turbidity units
OCWD	Orange County Water District
ORP	oxidation-reduction potential
OU	operable unit
PARCC	precision, accuracy, representativeness, completeness, and comparability
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
pCi/L	picoCuries per liter
QA	quality assurance
QAPP	quality assurance project plan
QC	quality control
%R	percent recovery
R	rejected value (data validation qualifier)
RA	remedial action
RCRA	Resource Conservation and Recovery Act
RD	remedial design
RFA	RCRA facility assessment
RI	remedial investigation
ROD	record of decision
RPD	relative percent difference
RWQCB	Regional Water Quality Control Board

Acronyms and Abbreviations (continued)

SAP	sampling and analysis plan
SC	specific conductivity
SDG	sample delivery group
SOP	standard operating procedure
SOW	statement of work
TCE	trichloroethene
TDS	total dissolved solids
TOC	top of casing
TPH	total petroleum hydrocarbons
U	nondetect (data qualifier)
UJ	nondetect, with estimated detection limit (data validation qualifier)
VOC	volatile organic compound
Weston	Weston Solutions, Incorporated
WL	water level

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Section 1
Introduction

The results of the Round 23 groundwater monitoring activities conducted during March 2006 at Former Marine Corps Air Station (MCAS) El Toro, California (herein referred to as "Former MCAS El Toro") are presented in this groundwater monitoring report. Figure 1 shows the location of Former MCAS El Toro. Figure 2 displays current Installation Restoration Program (IRP) sites with the sites monitored during Round 23 highlighted. The groundwater monitoring activities described in this report were performed for the Department of the Navy (DON), Naval Facilities Engineering Command (NAVFAC) Southwest by CDM Federal Programs Corporation (CDM) under Contract No. N68711-00-D-0004, Delivery Order 084.

The groundwater sampling and analysis activities described in this report compose the 23rd groundwater monitoring event (Round 23) conducted at the Former MCAS El Toro since 1992.

1.1 Objectives and Overview

In 1985, during routine groundwater sampling performed by the Orange County Water District (OCWD), trichloroethene (TCE) was identified in groundwater from an agricultural well located west of Former MCAS El Toro. A subsequent investigation by OCWD concluded that the groundwater contamination was originating from Former MCAS El Toro (Herndon and Reilly 1989). In 1990, the United States Environmental Protection Agency (EPA) placed Former MCAS El Toro on the National Priorities List (NPL) requiring action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as a result of the identified offsite contamination (later identified as IRP Site 18). The Navy agreed to conduct remedial investigation (RI)/feasibility studies (FS) of 25 previously identified IRP sites.

In 1992, the Navy initiated a comprehensive IRP and CERCLA investigation at the Former MCAS El Toro to investigate, evaluate, and, if necessary, remediate contamination resulting from historical operations. A total of 25 IRP sites have been identified at Former MCAS El Toro since the inception of the program. IRP Site 23 was subsequently closed during the Resource Conservation and Recovery Act (RCRA) facility assessment (RFA) conducted at Former MCAS El Toro. The other sites were grouped into three operable units (OUs) (OU-1, OU-2, and OU-3). OU-2 was subsequently divided into three subunits (OU-2A, OU-2B, and OU-2C) and was revised to include IRP Site 24 (volatile organic compound [VOC] source area). RIs have been completed for OU-1 (Jacobs Engineering Group, Inc. [JEG] 1996), OU-2A (Bechtel National, Inc. [BNI] 1997a), OU-2B (BNI 1997b, c), OU-2C (BNI 1997d, e), and OU-3 (BNI 1997f). Based on these RIs, no further action (NFA) was recommended for OU-2A

Site 25 and OU-3 Sites 4, 6, 9, 10, 13, 15, 19, 20, 21, and 22. A NFA record of decision (ROD) closing these 11 sites was signed in September 1997 (NAVFAC Southwest 1997). Subsequently, a NFA ROD for IRP Sites 7 and 14 was signed in June 2001 based on removal actions being completed for these sites (NAVFAC Southwest 2001).

Further action was recommended for IRP Sites 2, 3, 5, 8, 11, 12, 16, 17, 18, and 24. IRP Site 1 is currently being evaluated in an RI. Groundwater contamination was identified at 5 of these 11 sites (Sites 1, 2, 16, 18, and 24) and as a potential concern at landfill Sites 3, 5, and 17. IRP Sites 8, 11, and 12 have contamination in shallow soil although no groundwater contamination has been identified. Figure 2 is a site map showing the locations of all the IRP sites currently under investigation with the sites monitored during Round 23 highlighted.

The IRP Sites 1, 2, 3, 5, and 17 have become the focus of the semi-annual groundwater monitoring report since Round 22 (Figure 2). Round 22 and previous rounds included IRP Sites 16, 18, and 24, which are currently being monitored in accordance with site-specific remedial designs. The following is the current status of groundwater investigations and other IRP site investigations being conducted at Former MCAS El Toro:

IRP Site 1 (former ammunition storage) – An RI is currently being conducted at IRP Site 1. Several wells within the site have been sampled as part of the RI to further delineate groundwater contamination. One well is currently being sampled under this groundwater monitoring program to evaluate contaminant concentration trends. Perchlorate is the contaminant of concern (COC) at IRP Site 1.

IRP Site 2 (former landfill) - The remedial action (RA) is currently being implemented for this site and a groundwater treatment pilot project was completed in spring 2003 at IRP Site 2. Several wells have been abandoned at IRP Site 2 during the RA including two wells formerly included in the groundwater monitoring program (02_DGMW60 and 02_DGMW61). Newly constructed wells may be added to the monitoring program in the future. Wells for the RA will be monitored based on the requirements for long-term operation of the final remedy.

IRP Sites 3 and 5 (former landfill) – The Draft ROD has been issued and the remedial design (RD) is currently being prepared for these sites. The wells in the current program will continue to be monitored until the final remedy is in place. Optimum monitoring locations will be selected for the RA.

IRP Site 8, 11, and 12 – These sites are currently in the ROD and or RD/RA stage and exhibit polychlorinated biphenyl (PCB) contamination in surface soil. Previous investigations indicate that these sites have not contributed to groundwater contamination at the Former MCAS El Toro.

IRP Site 16 (fire fighting crash crew training pit No. 2) - The Final ROD was completed for IRP Site 16 in June 2003. The RD was finalized in March 2006. The RD includes semi-annual sampling events to evaluate monitored natural attenuation (MNA) in groundwater, grading of the firefighting training pit to establish positive drainage, and land-use restrictions for both soil and groundwater. An annual report will be prepared at the end of each year.

IRP Site 17 (former landfill) - The RA is currently being initiated for this site. Wells in the existing groundwater program will be monitored until the RA is completed. Wells for the RA will be monitored based on the requirements for long-term operation of the final remedy.

Groundwater monitoring activities described in this report have been conducted in general accordance with provisions of the *Draft Final CERCLA Groundwater Monitoring Plan* (GMP) (BNI 1999). The objectives of this groundwater monitoring report are to:

- Provide a brief background and describe the basis for groundwater monitoring activities at Former MCAS El Toro (Section 1).
- Summarize the history of the groundwater monitoring program and describe groundwater level monitoring activities and sample analyses performed for monitoring Round 23 (Section 2).
- Summarize the evaluation of water-level measurements and groundwater sample analytical results conducted during Round 23 as well as general trends in comparison with past sampling rounds (Section 3).
- Present conclusions and recommendations from the data evaluation (Section 3).

1.2 Physical Setting

Former MCAS El Toro is situated in south-central Orange County, within the city of Irvine, California (Figure 1). The station is bordered on the east and southeast by the city of Lake Forest; to the southeast, south, and southwest by the city of Irvine; and to the west, north, and northeast by unincorporated portions of Orange County and Federal Aviation Administration (FAA) property.

At its maximum acreage, Former MCAS El Toro comprised approximately 4,712 acres of property; however, approximately 3,792 acres have been transferred. In 1998, the Bake Parkway/Interstate 5 public highway expansion project resulted in the transfer of approximately 23 acres in the southeast portion of the station to the California Department of Transportation. In 2001, approximately 897 acres in the northeast portion of the station were transferred to the FAA. In addition, approximately 74 acres in the northeast portion of the station are pending transfer to the Federal Bureau of Investigation. Approximately 2,798 acres were transferred by deed to Lennar

Corporation in July 2005. The remaining 920 acres are being leased in furtherance of remaining cleanup activities.

1.3 Regional Hydrogeology

Former MCAS El Toro is located in the Irvine Groundwater Subbasin and is underlain by unconsolidated alluvial sediments of Holocene and Pleistocene age. The alluvial sediments beneath the Former MCAS El Toro and the off-station area to the west and northwest are divided into three primary hydrogeologic units. These consist of a coarse-grained interval designated as the shallow groundwater unit, a deeper coarse-grained interval designated as the principal aquifer, and a fine-grained intermediate zone that appears to provide some hydraulic separation between the two aquifer zones. Low-permeability semiconsolidated materials underlie the principal aquifer zone. The contact between the principal aquifer and the underlying low-permeability materials is considered to be the base of the water-bearing zone in this area (Herndon and Reilly 1989). Groundwater in the shallow groundwater unit is present under unconfined "water table" conditions, while groundwater in the principal aquifer is typically present under confined conditions.

The intermediate zone that separates the shallow groundwater unit from the deeper principal aquifer consists of fine-grained alluvial sediments and ranges from approximately 70 to 140 feet (ft) thick (JEG 1996). Although the vertical thickness and low-permeability suggest that the intermediate zone acts as an aquitard throughout much of the Irvine subbasin, subsurface data also indicate that it is not a single, continuous, extensive geologic unit (JEG 1996). Historical monitoring data documenting the movement of VOCs from the shallow groundwater unit to the principal aquifer also indicate that some hydraulic interconnection occurs through the intermediate zone.

The principal aquifer is the main water-production zone in the Irvine area. The saturated thickness of the principal aquifer ranges from less than 50 ft in the eastern portion of the Irvine Subbasin to approximately 1,000 ft in the western portion (JEG 1996). Groundwater elevations in the principal aquifer under static (nonpumping) conditions range from approximately 58 ft above mean sea level (amsl) near the western end of the Irvine Subbasin to about 183 ft amsl along its eastern margin beneath the western corner of the Former MCAS El Toro. Beneath the Former MCAS El Toro, the direction of groundwater flow is predominately toward the northwest and converges on a groundwater depression in the downgradient direction to the west of the Former MCAS El Toro.

1.4 Background on Groundwater Monitoring Program

The objectives of the groundwater monitoring program have changed over time based on the requirements of the IRP. As part of the OU-1, OU-2A, OU-2C and OU-3 RI/FS conducted at the station between 1992 and 1997, a network of on- and off-station monitoring locations (single wells, cluster wells, and Westbay multiport wells) were installed and sampling was conducted to determine groundwater flow patterns and to evaluate groundwater quality. Two rounds of groundwater sampling and analyses were performed under the Comprehensive Long-Term Environmental Action Navy (CLEAN) I program in 1992 (Round 1) and in 1993 (Round 2).

When groundwater contamination was discovered in several areas, additional rounds of sampling (Rounds 3 through 7) were conducted between 1995 and 1997 under the CLEAN II program with the objectives of monitoring potential impacts of IRP sites on groundwater quality, identifying contaminants of potential concern (COPCs), monitoring the extent and movement of existing plumes, evaluating changes in groundwater over time, and providing data necessary to determine groundwater flow direction and hydraulic gradients. These rounds were conducted in accordance with an initial RI/FS Groundwater Monitoring Plan that was developed in 1995. The plan was modified continually to reflect additions of new wells, deletions of wells where contaminants were not reported, and evaluation of information gathered.

The draft final GMP (BNI 1999) was developed to assess groundwater conditions during the time remaining until implementation of final remedies at IRP Sites 2, 3, 5, 17, 18, and 24 and during the subsequent post-closure period. Groundwater monitoring Rounds 8 through 11 were conducted in general accordance with the provisions of the draft final GMP, with modifications as necessary.

Modifications to the number of wells sampled and analyses conducted at each well were implemented during Round 12. Wells were removed from the sampling list if they generated redundant data, were outside of the plume area, or were located within formerly closed sites. Analytical testing of samples collected from each well during Round 12 was selected to be consistent with contaminants at each site and to support base-wide evaluations of contaminants. The groundwater monitoring report for Round 12 describes changes to the groundwater monitoring program in detail (CDM 2001a).

Additional wells were added to the program during Rounds 13 through 22 based on discussions with the Base Realignment and Closure (BRAC) Cleanup Team (BCT) and water districts. The current monitoring program is intended as an interim program until the ROD for each of the sites is complete and the post-ROD monitoring programs for the final remedies have been initiated. The current groundwater monitoring program includes sampling of one well at IRP Site 1, and multiple wells at IRP Sites 2, 3, 5, and 17. IRP Site 16 is sampled during the semi-annual sampling events, however, the evaluation of the data is presented in a separate annual report per the RD (CDM 2006a). Groundwater monitoring activities at IRP Sites 18 and 24 were removed from this monitoring program prior to Round 23. IRP Sites 18 and 24 will progress through the CERCLA process as individual sites.

Groundwater sampling Rounds 1 to 23 were performed as follows:

Round	Date	Report Reference	Comments
1	1992-1993	JEG 1994	Phase I RI
2	1992-1993	JEG 1994	Phase I RI
3	Jan.-Feb. 1996	CDM 1996a	182 Wells/Ports
4	Nov.-Dec. 1996	CDM 1997a	182 Wells/Ports
5	March 1997	CDM 1997b	182 Wells/Ports
6	July 1997	CDM 1997c	80 Wells/Ports
7	Oct. 1997	CDM 1998	80 Wells/Ports
8	Oct. 1998	CDM 2000a	115 Wells/Ports
9	Jan.-Feb 1999	CDM 2000b	23 Wells/Ports
10	Apr.-May 1999	CDM 2000b	46 Wells/Ports
11	July-Aug. 1999	CDM 2000b	115 Wells/Ports
12	June 2000	CDM 2001a	55 Wells/Ports
13	February 2001	CDM 2001b	78 Wells/Ports
14	September 2001	CDM 2002a	85 Wells/Ports
15	March 2002	CDM 2002b	94 Wells/Ports
16	September 2002	CDM 2003a	97 Wells/Ports
17	March 2003	CDM 2003b	98 Wells/Ports
18	September 2003	CDM 2003c	97 Wells/Ports
19	March 2004	CDM 2004a	100 Wells/Ports
20	September 2004	CDM 2004b	113 Wells/Ports
21	March 2005	CDM 2005	114 Wells/Ports
22	September 2005	CDM 2006b	132 Wells/Ports
23	March 2006	--	19 Wells

Section 2
Groundwater Monitoring Activities

This section summarizes groundwater monitoring activities conducted during March 2006 (Round 23) at the Former MCAS El Toro. Monitoring activities included groundwater level measurements followed by groundwater sampling. Table 1 provides a summary of groundwater analyses for Round 23. The locations of wells under investigation during Round 23 are shown on Figure 2.

The groundwater monitoring program currently includes one monitoring well from IRP Site 1 and multiple wells from IRP Sites 2, 3, 5, and 17. The Round 23 groundwater monitoring program was modified by the Navy, with recommendations from the BCT and water districts, from the wells and parameters presented in Table 3-7 of the GMP (BNI 1999) to provide representative sampling of the sites based on new information not available at the time the GMP was prepared.

Round 23 consisted of collecting water-level measurements and groundwater samples from 19 monitoring wells. Round 23 included sampling of wells sampled during Round 22 with the exception of wells at IRP Sites 16, 18, and 24, which are currently being sampled in accordance with site-specific remedial designs. Table 2 presents changes to the basewide monitoring program between Rounds 22 and 23.

2.1 Groundwater Level Measurements

Groundwater level measurements were collected from the 19 monitoring wells listed in Table 1. A summary of groundwater level measurements and groundwater elevations from the current sampling round, as well as previous rounds, is included as Table 3.

2.2 Groundwater Sampling

Groundwater sampling for Round 23 was conducted from 15 March 2006 through 28 March 2006, and included collection of groundwater samples from 19 monitoring wells. Table 4 presents a historical summary of groundwater sampling parameters. Groundwater quality data are presented in Tables 5 through 9 of this report.

The following sampling methods were used during Round 23:

- Low-flow purging and sampling procedures were used at 13 single wells equipped with dedicated bladder pumps.

- Conventional three-well volume purging and sampling with a portable submersible pump was used at six monitoring wells that are not equipped with dedicated sampling equipment.

These methods of sampling are further described in the following subsections.

2.2.1 Dedicated Pump/Low-flow Purging

Purging and sampling of the wells equipped with dedicated bladder pumps (micropurge method) was performed at a constant pumping rate of approximately 100 milliliters per minute (mL/min). Groundwater levels were monitored continuously during purging to ensure that minimal drawdown ($\leq$ 0.3 ft) was maintained. Drawdown of less than 0.3 ft was observed during low-flow purging in all wells. In addition to drawdown, field measurements of temperature, pH, specific conductivity (SC), oxidation-reduction potential (ORP), and dissolved oxygen (DO), were taken continuously and logged at 3 to 5 minute intervals during purging using a flow-through cell (QED Model R-FC5000). Turbidity was measured at approximately 3 to 5 minute intervals using a portable turbidity meter (LaMotte Model 2020). Groundwater samples were collected only after at least one pump system volume had been purged from each well and three consecutive field parameter readings for pH, temperature, and SC taken at 3 minute intervals had stabilized (as indicated by less than a 10 percent change in the last three sets of measured parameters). The pump system volume, specific to each well, represents the volume of the pump bladders (395 mL) plus the volume of the discharge tubing connecting the pump to the well cap (9.5 mL per foot multiplied by the tubing length).

2.2.2 Temporary Pump/Conventional Purging

Single monitoring wells that are not equipped with a dedicated bladder pump system were purged and sampled using a decontaminated electric submersible pump. A 3-inch diameter variable-speed Grundfos pump was used. Purging was performed at pumping rates ranging from approximately 3 to 10 gallons per minute (gpm). The pumping rate and the drawdown were measured at multiple intervals during purging. A constant pumping rate was maintained at each well during purging unless the measured groundwater level approached the depth of the pump intake, necessitating a reduction in the pumping rate to reduce drawdown. During purging, field parameters (temperature, pH, SC, DO, and ORP) were measured continuously using a Horiba U-22 Water Quality Monitoring System with a flow-through cell. Measurements were logged at timed intervals (usually 2 to 5 minutes). Turbidity was measured using a portable turbidity meter. Samples were collected once the field parameters (pH, temperature, SC) stabilized (less than a 10 percent change in the last three measured sets of parameters) and after purging a minimum of three well casing volumes from each well. For sample collection, the discharge rate was reduced to between 200 and

500 mL/min. The temporary pump and piping used for purging and sampling were decontaminated prior to purging and sampling of each well.

2.3 Sample Analysis

As described in Section 2.2, analytical testing was modified from the GMP during Round 23 in order to be consistent with contaminants present at each site. The groundwater monitoring report for Round 12 (CDM 2001a) describes in detail these changes to the groundwater monitoring program. Groundwater samples are currently collected and analyzed for VOCs semi-annually in March and September. Groundwater samples from selected wells are also analyzed for additional parameters including perchlorates, radionuclides, metals, and general chemistry parameters. During Round 23, groundwater samples collected from 19 monitoring wells were analyzed for VOCs; samples from 16 wells were analyzed for gross alpha/gross beta; samples from 18 wells were analyzed for metals; and samples from six wells were analyzed for general chemistry parameters. IRP Site 1 well 01_MW201 was also sampled for perchlorates. Table 1 summarizes the analyses conducted for samples from each monitoring well.

2.3.1 VOCs

VOCs are the primary COPCs at the Former MCAS El Toro. All 19 wells sampled were analyzed for VOCs using EPA Contract Laboratory Program (CLP) Method OLM 04.2.

2.3.2 Radionuclides

Sixteen groundwater samples were analyzed for gross alpha and gross beta particle activity using EPA Method 900. Samples were collected from selected monitoring wells at IRP Sites 2, 3, and 5 to support basewide radionuclides evaluation.

2.3.3 Metals

During Round 23, eighteen field-filtered groundwater samples were analyzed for target metals using EPA CLP Method (ILM 0.40). Samples were collected from select monitoring wells at IRP Sites 2, 3, 5, and 17 to support base-wide evaluation of metals in groundwater.

2.3.4 General Chemistry

Samples collected from six wells were analyzed for alkalinity, chloride, nitrate, nitrite, sulfate, and total dissolved solids (TDS) during Round 23. The samples were analyzed using EPA Methods 300 (chloride, nitrate, and sulfate), 310.1 (alkalinity), and 160.1 (TDS). Samples were collected from selected monitoring wells at IRP Sites 2, 3, 5, and 17.

2.3.5 Perchlorate

During Round 23, perchlorate was sampled at one IRP Site 1 well using EPA Method 314 and 8321.

2.4 Quality Assurance/Quality Control

Sampling procedures for Round 23 at the Former MCAS El Toro followed the *Amended Final Sampling and Analysis Plan (SAP) and Quality Assurance (QA) Project Plan (QAPP)* prepared for the Former MCAS El Toro groundwater sampling program (CDM 1996b), and the *Work Plan Addendum for Groundwater Monitoring Data* (CDM 2000c). The data quality assessment program includes field quality control (QC) samples (i.e., field duplicates, matrix spike (MS)/matrix spike duplicates (MSD), and trip blanks), laboratory QC samples, data review/verification, and independent data validation. A detailed description of the QA/QC program, procedures performed during Round 23, and results of QC sample analyses are included in Appendix A.

Section 3
Summary of Monitoring Results

Groundwater monitoring activities at the Former MCAS El Toro for Round 23 included measurement of groundwater levels at 19 monitoring wells and collection of groundwater samples from those 19 monitoring wells. This section presents the results of the evaluation of data collected during Round 23.

3.1 Water Level Measurements

An evaluation of water level elevations at Former MCAS El Toro during the past nine years indicates that on a regional scale, groundwater generally flows to the west in the shallow groundwater unit. Water level data collected during Round 23 support these conclusions. Groundwater elevation contours generated from the basewide monitoring data from Round 23 indicate a westerly flow direction of groundwater in the shallow groundwater unit with an average hydraulic gradient 0.046 feet per linear foot.

3.2 Groundwater Analysis

During Round 23, groundwater samples were collected from 19 monitoring wells at the Former MCAS El Toro. All samples were analyzed for VOCs. Samples from selected wells were also analyzed for radionuclides, metals, perchlorates, and general chemistry parameters. This section presents the Round 23 groundwater monitoring results which exceeded associated maximum contaminant levels (MCLs). Complete analytical results are presented in Tables 5 through 9.

3.2.1 IRP Site 1

Samples from IRP Site 1 were collected from well 01_MW201 and were analyzed for VOCs and perchlorate. No VOCs were detected in the sample, which is consistent with previous results for this well. Perchlorate was reported in the sample collected from 01_MW201 during Round 23 at a concentration of 376 micrograms per liter (µg/L), which has increase from the Round 22 result (276 µg/L) and exceeds the Navy action level of 24 µg/L (DON 2006). Historical and Round 23 perchlorate results are presented in Table 9. Perchlorate concentrations at this well will continue to be monitored in subsequent monitoring rounds.

3.2.2 IRP Site 2

During Round 23, seven of sixteen existing wells were sampled at IRP Site 2 (Magazine Road Landfill). All seven groundwater samples were analyzed for VOCs, metals, and radionuclides. In addition, one sample was collected (02NEW16) and analyzed for general chemistry. IRP Site 2 analytical results are presented in Tables 5 through 8.

VOCs

Historically, VOCs in groundwater at IRP Site 2 have been associated with two small plumes. The first plume (tetrachloroethene [PCE]) located along the western edge of IRP Site 2 and downgradient of a former operational landfill, is monitored by well 02_NEW8A, which is centrally located within the plume. The concentration of PCE in the sample collected from this well during Round 23 was 8 μg/L, which is greater than the concentration of PCE reported during Round 22 (6 μg/L) and also exceeds the MCL of 5 μg/L. Concentrations of PCE at 02 NEW8A will continue to be evaluated during future sampling rounds.

The second IRP Site 2 plume (TCE) was previously monitored by well 02_DGMW60 that was decommissioned in September 2003. TCE was reported in the sample collected from well 02NEW7 during Round 23 at a concentration of 32 μg/L, which is greater than previous analytical results and the MCL (5 μg/L). Concentrations of TCE at 02NEW7 will continue to be evaluated during future sampling rounds.

Radionuclides

Groundwater samples were collected and analyzed for radionuclides (total gross alpha and total gross beta particle activity) from seven wells at IRP Site 2 during monitoring Round 23. Concentrations of gross alpha particle activity in samples collected from IRP Site 2 wells during Round 23 ranged from 5.31 picoCuries per liter (pCi/L) to 32.2 pCi/L. Concentrations of gross alpha particle activity from samples collected from four wells (02NEW15, 02NEW16, 02_NEW2, and 02NEW7) exceeded the MCL of 15 pCi/L. Concentrations of gross beta particle activity ranged from 4.22 pCi/L to 12.6 pCi/L, all below the MCL of 50 pCi/L. These results for IRP Site 2 are comparable to results for total gross alpha and total gross beta during previous rounds.

Metals

During Round 23, nickel was reported above the MCL of 100 μg/L in one sample collected from well 02NEW11 at a concentration of 223 μg/L. Similar concentrations of nickel have been reported during previous sampling rounds at this well. Concentrations of other metals were reported below their respective MCLs (if established) and are comparable to previous sampling rounds. An evaluation of metals conducted for the Former MCAS El Toro in 1998 indicated that metals are not considered as COPCs (BNI 1998).

General Chemistry Parameters

The groundwater sample collected from well 02NEW16 was analyzed for general chemistry parameters (TDS, chloride, sulfate, nitrate, and alkalinity) to provide general information about water quality trends at IRP Site 2. Sulfate at a concentration of 277 mg/L and TDS at 845 mg/L were reported above their federal secondary MCLs of 250 mg/L and 500 mg/L, respectively. Concentrations of general chemistry parameters reported during Round 23 at IRP Site 2 are comparable to previous sampling rounds.

3.2.3 IRP Site 3

Groundwater samples from five IRP Site 3 wells were collected and analyzed for VOCs, metals, and radionuclides. In addition, groundwater samples from two IRP Site 3 wells (03_DGMW64A and 03_DGMW65XA) were collected and analyzed for general chemistry parameters. IRP Site 3 analytical results are presented in Tables 5 through 8.

VOCs

VOCs were not detected at concentrations that exceeded MCLs in any IRP Site 3 samples. Analytical results are consistent with previous sampling rounds.

Radionuclides

Concentrations for gross alpha particle activity from samples collected from IRP Site 3 wells ranged from 16.7 pCi/L to 31.7 pCi/L and exceeded the MCL of 15 pCi/L in three wells (03_DGMW64A; 03_DGMW65XA; and 04_DGMW66A). Concentrations for gross beta particle activity ranged from 12.1 pCi/L to 16.1 pCi/L, all below the MCL of 50 pCi/L. These results for IRP Site 3 are comparable to results for total gross alpha and total gross beta reported during previous sampling rounds. A separate study on radionuclides at the Former MCAS El Toro concluded that detections of radionuclides at the base are naturally occurring (Earth Tech 2001).

Metals

During Round 23, nickel was reported above the MCL of 100 μg/L in samples collected from all five IRP Site 3 wells at concentrations ranging from 219 μg/L to 664 μg/L. Thallium was reported above the MCL of 2 μg/L in four of five IRP Site 3 samples at estimated concentrations ranging from 2.2 J μg/L and 3.0 J μg/L. Manganese was detected in a sample from 04_DGMW66A at a concentration (67.4 μg/L) that exceeded the MCL of 50 μg/L. Concentrations of metals in IRP Site 3 wells during round 23 were consistent with results in previous sampling events. An evaluation of metals conducted for the Former MCAS El Toro in 1998 indicated that metals are not considered COPCs (BNI 1998).

General Chemistry Parameters

The groundwater samples collected from wells 03_DGMW64A and 03_DGMW65XA were analyzed for general chemistry parameters (TDS, chloride, sulfate, nitrate, and alkalinity) to provide general information about water quality trends at IRP Site 3. Only TDS was reported at concentrations above the federal secondary MCL of 500 mg/L at concentrations of 851 mg/L (03_DGMW64A) and 823 mg/L (03_DGMW65XA). Concentrations of general chemistry parameters reported during Round 23 at IRP Site 3 are comparable to previous sampling rounds.

3.2.4 IRP Site 5

Groundwater samples from five IRP Site 5 wells were collected and analyzed for VOCs, metals, and radionuclides. In addition, a groundwater sample from 05NEW1 was collected and analyzed for general chemistry parameters. IRP Site 5 analytical results are presented in Tables 5 through 8.

VOCs

VOCs were not detected at concentrations that exceeded MCLs in any IRP Site 5 well. Analytical results are consistent with previous sampling rounds.

Radionuclides

Concentrations for gross alpha particle activity from samples collected from IRP Site 5 wells ranged from 10.4 pCi/L to 26.4 pCi/L and exceeded the MCL of 15 pCi/L in two wells (05_DBMW41 and 05_DGMW68A). Concentrations for gross beta particle activity ranged from 7.52 pCi/L to 9.89 pCi/L, all below the MCL of 50 pCi/L. These results for IRP Site 5 are comparable to results for total gross alpha and total gross beta reported during previous sampling rounds. A separate study on radionuclides at the Former MCAS El Toro concluded that detections of radionuclides at the base are naturally occurring (Earth Tech 2001).

Metals

During Round 23, metals were not detected in any IRP Site 5 well at concentrations that exceeded MCLs. Analytical results are consistent with previous sampling rounds.

General Chemistry Parameters

The groundwater samples collected from 05NEW1 were analyzed for general chemistry parameters (TDS, chloride, sulfate, nitrate, and alkalinity) to provide general information about water quality trends at IRP Site 5. Only TDS was reported at concentrations above the federal secondary MCL of 500 mg/L at a concentration of 860 mg/L. Concentrations of general chemistry parameters reported during Round 23 at IRP Site 5 are comparable to previous sampling rounds.

3.2.5 IRP Site 17

Groundwater samples from two IRP Site 17 wells were collected and analyzed for VOCs, metals, and general chemistry. IRP Site 17 analytical results are presented in Tables 5, 6, and 8.

VOCs

VOCs were not detected in samples from any IRP Site 17 wells at concentrations that exceeded associated MCLs. Analytical results were consistent with previous sampling rounds.

Metals

During Round 23, nickel was reported above the MCL of 100 µg/L in samples 17NEW1 (2070 µg/L) and 17_DGMW82 (416 µg/L), which is consistent previous sampling results. Other concentrations of metals reported in IRP Site 17 wells were reported below their respective MCLs and are comparable to concentrations reported during previous sampling rounds. An evaluation of metals conducted for the Former MCAS El Toro in 1998 indicated that metals are not considered chemicals of potential concern (BNI 1998).

General Chemistry Parameters

The groundwater samples collected from wells 17NEW1 and 17_DGMW82 were analyzed for general chemistry parameters (i.e., TDS, chloride, sulfate, nitrate, and alkalinity) to provide general information about water quality trends at IRP Site 17. Only TDS was reported at concentrations above the federal secondary MCL of 500 mg/L at concentrations of 676 mg/L (17_DGMW82) and 860 mg/L (17NEW1). Concentrations of general chemistry parameters reported during Round 23 at IRP Site 17 are comparable to previous sampling rounds.

3.3 Recommendations

At present, the groundwater monitoring program consists of sampling selected wells located at multiple IRP sites to monitor the COPCs. The program is designed to evolve to ensure that the data collected provides a clear understanding of current conditions and incorporates any changes at the IRP sites (e.g., the need to add or remove wells). Any changes to the existing program, including wells to be sampled, parameters to be analyzed for, and/or sampling methodologies will be discussed with the regulatory agencies. After Round 24 and completion of the 2006 annual report, the groundwater monitoring program at Former MCAS El Toro will be evaluated and revised to ensure that data collected provides a clear understanding of current conditions and incorporates any changes at the IRP sites.

The following recommendations are made for current monitoring wells in the groundwater monitoring program:

- Well 17_NEW1 has been recommended for redevelopment since Round 21 but redevelopment has not been performed due to access issues. Overgrown vegetation makes access with development equipment not possible. It is recommended that 17_NEW1 continue to be monitored with current turbidity conditions until redevelopment can be performed once appropriate vegetative clearance activities have been performed.
- 17_DGMW82 is recommended for redevelopment due to sustained elevated TDS measurements since 1993. In addition, redevelopment is recommended to improve groundwater recovery and increase sampling volume.

Round 24 is scheduled for fall 2006. The same monitoring wells sampled during Round 23 are planned for sampling during Round 24. Round 24 will include measurement of water levels and sampling for VOCs at all monitoring wells and sampling for natural attenuation parameters and total petroleum hydrocarbons (TPH) at IRP Site 16 wells. IRP Site 16 well data will continue to be presented in a separate report per the RD (CDM 2006a).

Section 4
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TABLES

Table 1
Summary of Groundwater Analyses for Round 23
Former MCAS El Toro, California

IRP Site No.	Well ID	Well Completion	Well Type	Sampling System	Date Sampled	VOCs CLP Method (OLM 04.2)	Gross Alpha/Beta (EPA 900)	Metals (filtered) CLP Method (ILM 0.40)	General Chemistry (1)	Perchlorates (EPA Method 314 & 8321)	QC Samples
1	01_MW201	Shallow	single	bladder pump	16-Mar-06	X				X	
2	02_DGMW59	Shallow	single	bladder pump	21-Mar-06	X	X	X			MS/MSD
	02NEW11	Shallow	single	bladder pump	21-Mar-06	X	X	X			
	02NEW15	Shallow	single	bladder pump	22-Mar-06	X	X	X			
	02NEW16	Shallow	single	bladder pump	22-Mar-06	X	X	X	X		
	02NEW2	Shallow	single	bladder pump	22-Mar-06	X	X	X			
	02NEW7	Shallow	single	None	16-Mar-06	X	X	X			Duplicate
	02NEW8A	Shallow	single	bladder pump	16-Mar-06	X	X	X			
3	03_DGMW64A	Shallow	single	None	15-Mar-06	X	X	X	X		
	03_DGMW65XA	Shallow	single	None	15-Mar-06	X	X	X	X		Duplicate
	04_DBMW40	Shallow	single	bladder pump	15-Mar-06	X	X	X			
	04_DGMW66A	Shallow	single	None	16-Mar-06	X	X	X			
	04_UGMW63	Shallow	single	bladder pump	16-Mar-06	X	X	X			
5	05_DBMW41A	Shallow	single	None	15-Mar-06	X	X	X			
	05_DGMW67A	Shallow	single	bladder pump	17-Mar-06	X	X	X			
	05_DGMW68A	Shallow	single	None	16-Mar-06	X	X	X			
	05NEW1	Shallow	single	bladder pump	17-Mar-06	X	X	X	X		
17	17_DGMW82	Shallow	single	bladder pump	22-Mar-06	X		X	X		
	17NEW1	Shallow	single	bladder pump	20-Mar-06	X		X	X		

Notes:

(1) General Chemistry Methods: alkalinity (EPA 310.1); total dissolved solids (EPA 160.1); chloride, nitrate, and sulfate (EPA 300); and nitrite as N (EPA 354.1).

Acronyms and Abbreviations:

CLP = contract laboratory program
EPA = United States Environmental Protection Agency
ILM = inorganic laboratory method
IRP = Installation Restoration Program
ms/msd = matrix spike/matrix spike duplicate
NA = not available
OLM = organic laboratory method
TPH = total petroleum hydrocarbons
VOCs = volatile organic compounds
QC = quality control

Table 2
Summary of Changes to the Groundwater Monitoring Program Between Monitoring Rounds 22 and 23, September 2005 and March 2006 at Former MCAS El Toro, California

Well Identification	Well Completion	Well Type	Screen Interval (feet bgs)	Sampling System	Water Level	Sampled	Changes in Sampling Program from Round 22 to Round 23
SITE 1							
01_MW201	Shallow	single	27-57	bladder pump	✓	✓	No change
SITE 2							
02_DGMW59	Shallow	single	69—89	bladder pump	✓	✓	No change
02NEW11	Shallow	single	45—65	bladder pump	✓	✓	No change
02NEW15	Shallow	single	25—65	bladder pump	✓	✓	No change
02NEW16	Shallow	single	25—65	bladder pump	✓	✓	No change
02NEW2	Shallow	single	75—95	bladder pump	✓	✓	No change
02NEW7	Shallow	single	103—143	None	✓	✓	No change
02NEW8A	Shallow	single	84—104	bladder pump	✓	✓	No change
SITE 3							
03_DGMW64A	Shallow	single	210-250	None	✓	✓	No change
03_DGMW65XA	Shallow	single	201-235	None	✓	✓	No change
04_DBMW40	Shallow	single	220—260	bladder pump	✓	✓	No change
04_DGMW66A	Shallow	single	190-230	None	✓	✓	No change
04_UGMW63	Shallow	single	235—275	bladder pump	✓	✓	No change
SITE 5							
05_DBMW41A	Shallow	single	145-185	None	✓	✓	No change
05_DGMW67A	Shallow	single	150-190	bladder pump	✓	✓	No change
05_DGMW68A	Shallow	single	146-186	None	✓	✓	No change
05NEW1	Shallow	single	163—203	bladder pump	✓	✓	No change
SITE 16							
16_MPE1	Shallow	single	146-191	bladder pump	✓	✓	No change
16_MW01	Shallow	single	155-180	bladder pump	✓	✓	No change
16_MW02	Shallow	single	153-178	bladder pump	✓		Well removed from the semi-annual monitoring program
16_MW03	Shallow	single	158-183	bladder pump	✓	✓	No change
16_MW04	Shallow	single	155-190	bladder pump	✓	✓	No change
16_MW05	Shallow	single	155-190	bladder pump	✓	✓	No change.
16_MW07	Shallow	single	145-190	bladder pump	✓		Well removed from the semi-annual monitoring program
16_MW08	Shallow	single	165-185	bladder pump	✓	✓	No change
16_MW09	Shallow	single	165-185	bladder pump	✓	✓	No change

Table 2 (continued)

Summary of Changes to the Groundwater Monitoring Program Between Monitoring Rounds 22 and 23, September 2005 and March 2006 at Former MCAS El Toro, California

Well Identification	Well Completion	Well Type	Screen Interval (feet bgs)	Sampling System	Water Level	Sampled	Changes in Sampling Program from Round 22 to Round 23
16_MW10	Shallow	single	185-195	bladder pump	✓		Well removed from the semi-annual monitoring program
16_MW11	Shallow	single	160-180	bladder pump	✓	✓	No change
16_MW12	Shallow	single	160-180	bladder pump	✓		Well removed from the semi-annual monitoring program
16_MW13	Shallow	single	160-180	bladder pump	✓	✓	No change
16_MW14	Shallow	single	185-195	bladder pump	✓		Well removed from the semi-annual monitoring program
16_MW15	Shallow	single	160-180	bladder pump	✓		Well removed from the semi-annual monitoring program
16_MW16	Shallow	single	190-220	bladder pump	✓		Well removed from the semi-annual monitoring program
SITE 17							
17_DGMW82	Shallow	single	235-255	bladder pump	✓	✓	No change
17NEW1	Shallow	single	186–226	bladder pump	✓	✓	No change
SITE 18							
18_BGMP06A	Principal	multiport	445-455	Westbay System			Well removed from the monitoring program
18_BGMP06B	Principal	multiport	380-390	Westbay System			Well removed from the monitoring program
18_BGMP06C	Principal	multiport	295-305	Westbay System			Well removed from the monitoring program
18_BGMP10A	Principal	multiport	1001-1011	Westbay System			Well removed from the monitoring program
18_BGMP10B	Principal	multiport	887-897	Westbay System			Well removed from the monitoring program
18_BGMP10C	Principal	multiport	752-762	Westbay System			Well removed from the monitoring program
18_BGMP10D	Principal	multiport	563-573	Westbay System			Well removed from the monitoring program
18_BGMP10E	Principal	multiport	429-439	Westbay System			Well removed from the monitoring program
18_BGMP10F	Principal	multiport	218-229	Westbay System			Well removed from the monitoring program
18_BGMW03A	Principal	cluster	370-390	None			Well removed from the monitoring program
18_BGMW03B	Principal	cluster	280-300	None			Well removed from the monitoring program
18_BGMW04A	Principal	cluster	286–306	None			Well removed from the monitoring program
18_BGMW19A	Principal	cluster	448-468	None			Well removed from the monitoring program
18_BGMW19B	Principal	cluster	400-420	None			Well removed from the monitoring program
18_BGMW19C	Principal	cluster	257-277	None			Well removed from the monitoring program
18_BGMW103	Principal	single	440-480	None			Well removed from the monitoring program
18_DP2-S	Principal	Nested	300-340	None			Well removed from the monitoring program
18_MCAS01-4	Principal	multiport	270-280	Westbay System			Well removed from the monitoring program
18_MCAS01-5	Principal	multiport	330-340	Westbay System			Well removed from the monitoring program
18_MCAS01-6	Principal	multiport	450-460	Westbay System			Well removed from the monitoring program

Table 2 (continued)
Summary of Changes to the Groundwater Monitoring Program Between Monitoring Rounds 22 and 23, September 2005 and March 2006 at Former MCAS El Toro, California

Well Identification	Well Completion	Well Type	Screen Interval (feet bgs)	Sampling System	Water Level	Sampled	Changes in Sampling Program from Round 22 to Round 23
18_MCAS01-7	Principal	multiport	540-550	Westbay System			Well removed from the monitoring program
18_MCAS02-4	Principal	multiport	370-380	Westbay System			Well removed from the monitoring program
18_MCAS02-5	Principal	multiport	420-430	Westbay System			Well removed from the monitoring program
18_MCAS02-6	Principal	multiport	490-500	Westbay System			Well removed from the monitoring program
18_MCAS02-7	Principal	multiport	550-560	Westbay System			Well removed from the monitoring program
18_MCAS02-8	Principal	multiport	620-630	Westbay System			Well removed from the monitoring program
18_MCAS03-4	Principal	multiport	340-350	Westbay System			Well removed from the monitoring program
18_MCAS03-5	Principal	multiport	420-430	Westbay System			Well removed from the monitoring program
18_MCAS03-6	Principal	multiport	490-500	Westbay System			Well removed from the monitoring program
18_MCAS04	Principal	single	181-238	None			Well removed from the monitoring program
18_MCAS06	Principal	single	167-222	None			Well removed from the monitoring program
18_MCAS07-3	Principal	multiport	350-360	Westbay System			Well removed from the monitoring program
18_MCAS07-4	Principal	multiport	440-450	Westbay System			Well removed from the monitoring program
18_MCAS07-5	Principal	multiport	510-520	Westbay System			Well removed from the monitoring program
18_MCAS07-6	Principal	multiport	800-810	Westbay System			Well removed from the monitoring program
18_MCAS07-7	Principal	multiport	910-920	Westbay System			Well removed from the monitoring program
18_MCAS07-8	Principal	multiport	980-990	Westbay System			Well removed from the monitoring program
18_MCAS07-9	Principal	multiport	1100-1110	Westbay System			Well removed from the monitoring program
18_MCAS08	Principal	single	392-410	None			Well removed from the monitoring program
18_MCAS09	Principal	single	372-445	None			Well removed from the monitoring program
18_MCAS10	Principal	single	355-375	None			Well removed from the monitoring program
24EX13C	Shallow	single	185-205	bladder pump			Well removed from the monitoring program
24EX12C	Principal	single	235-255	Bladder pump			Well removed from the monitoring program
SITE 24							
07_DBMW43A	Shallow	single	101-141	None			Well removed from the monitoring program
07_DBMW70	Shallow	single	125-165	None			Well removed from the monitoring program
07_DGMW91	Shallow	single	110-150	None			Well removed from the monitoring program
08_DGMW73	Shallow	single	90-130	None			Well removed from the monitoring program
08_UGMW29A	Shallow	single	75-105	None			Well removed from the monitoring program
09_DGMW75	Shallow	single	114-154	bladder pump			Well removed from the monitoring program
10_BGMW77	Shallow	single	130-170	None			Well removed from the monitoring program

Table 2 (continued)
Summary of Changes to the Groundwater Monitoring Program Between Monitoring Rounds 22 and 23, September 2005 and March 2006 at Former MCAS El Toro, California

Well Identification	Well Completion	Well Type	Screen Interval (feet bgs)	Sampling System	Water Level	Sampled	Changes in Sampling Program from Round 22 to Round 23
12_UGMW31	Shallow	single	120-145	None			Well removed from the monitoring program
15_DBMW51	Shallow	single	125-165	bladder pump			Well removed from the monitoring program
18_BGMP06D	Shallow	multiport	168-178	Westbay System			Well removed from the monitoring program
18_BGMP06E	Shallow	multiport	105-115	Westbay System			Well removed from the monitoring program
18_BGMP08E	Shallow	multiport	63-73	Westbay System			Well removed from the monitoring program
18_BGMW03C	Shallow	cluster	222-242	None			Well removed from the monitoring program
18_BGMW101A	Shallow	single	68-98	bladder pump			Well removed from the monitoring program
18_BGMW19D	Shallow	cluster	150—170	bladder pump			Well removed from the monitoring program
18_BGMW19E	Shallow	cluster	98-138	None			Well removed from the monitoring program
18_DP2	Shallow	Nested	155-195	None			Well removed from the monitoring program
18_DW135	Shallow	cluster	115—135	bladder pump			Well removed from the monitoring program
18_MCAS01-1	Shallow	multiport	55-65	Westbay System			Well removed from the monitoring program
18_MCAS01-2	Shallow	multiport	145-155	Westbay System			Well removed from the monitoring program
18_MCAS01-3	Shallow	multiport	205-215	Westbay System			Well removed from the monitoring program
18_MCAS02-1	Shallow	multiport	40-50	Westbay System			Well removed from the monitoring program
18_MCAS02-2	Shallow	multiport	130-140	Westbay System			Well removed from the monitoring program
18_MCAS02-3	Shallow	multiport	200—210	Westbay System			Well removed from the monitoring program
18_MCAS03-1	Shallow	multiport	85-95	Westbay System			Well removed from the monitoring program
18_MCAS03-2	Shallow	multiport	160-170	Westbay System			Well removed from the monitoring program
18_MCAS03-3	Shallow	multiport	220—230	Westbay System			Well removed from the monitoring program
18_MCAS07-1	Shallow	multiport	90-100	Westbay System			Well removed from the monitoring program
18_MCAS07-2	Shallow	multiport	190—200	Westbay System			Well removed from the monitoring program
18_PS1	Shallow	single	102-122	bladder pump			Well removed from the monitoring program
18_PS2	Shallow	single	103—133	bladder pump			Well removed from the monitoring program
18_PS3A	Shallow	single	70-105	bladder pump			Well removed from the monitoring program
18_PS5	Shallow	single	106—126	None			Well removed from the monitoring program
18_PS6	Shallow	single	130-150	None			Well removed from the monitoring program
18_PS7	Shallow	single	106—126	bladder pump			Well removed from the monitoring program
18_PS8	Shallow	single	125-145	None			Well removed from the monitoring program
21_UGMW37	Shallow	single	89-130	None			Well removed from the monitoring program
22_DBMW47	Shallow	single	116-156	bladder pump			Well removed from the monitoring program

Table 2 (continued)

Summary of Changes to the Groundwater Monitoring Program Between Monitoring Rounds 22 and 23, September 2005 and March 2006 at Former MCAS El Toro, California

Well Identification	Well Completion	Well Type	Screen Interval (feet bgs)	Sampling System	Water Level	Sampled	Changes in Sampling Program from Round 22 to Round 23
24_IN03	Shallow	single	140-160	None			Well removed from the monitoring program
24EX10	Shallow	single	140-160	None			Well removed from the monitoring program
24EX11	Shallow	single	195-215	None			Well removed from the monitoring program
24EX12A	Shallow	single	140-160	None			Well removed from the monitoring program
24EX12B	Shallow	single	200-220	None			Well removed from the monitoring program
24EX13A	Shallow	single	145-165	None			Well removed from the monitoring program
24EX13B	Shallow	single	185-205	None			Well removed from the monitoring program
24EX14	Shallow	single	165-185	None			Well removed from the monitoring program
24EX3OB1	Shallow	single	105-150	None			Well removed from the monitoring program
24EX6OB1	Shallow	single	106-151	None			Well removed from the monitoring program
24EX9	Shallow	single	175-195	None			Well removed from the monitoring program
24MW05A	Shallow	single	unknown	None			Well removed from the monitoring program
24MW05B	Shallow	single	unknown	None			Well removed from the monitoring program
24MW06	Shallow	single	170-190	None			Well removed from the monitoring program
24MW07	Shallow	single	180-200	None			Well removed from the monitoring program
24NEW4	Shallow	single	108—148	bladder pump			Well removed from the monitoring program
24NEW7	Shallow	single	118—158	bladder pump			Well removed from the monitoring program
24NEW8	Shallow	single	122—162	bladder pump			Well removed from the monitoring program
				Totals:	35	28	

Notes:

bgs = below ground surface

Table 3
Summary of Historical Water Level Measurements and Groundwater Elevations
Former MCAS El Toro, California

IRP Site	Well ID	Survey Data: Northing	Survey Data: Easting	Well TOC Elevation (feet MSL)	Well Depth (feet bgs)	Screen Interval (feet bgs)	Date Measured	Depth to Water (feet BTOC)	Groundwater Elevation (feet MSL)	Water Level Change (feet)
1	01_DGMW57			631.17		63 – 83	4-Apr-99	47.11	584.06	
				631.17			12-Jul-99	47.89	583.28	-0.78
	01_DGMW58			622.74		55 – 77	4-Apr-99	39.25	583.49	
	01MW101			750.82		118 - 148	4-Apr-99	60.22	690.60	
				750.82			12-Jul-99	60.95	689.87	-0.73
	01MW102			758.13		95 - 135	4-Apr-99	103.71	654.42	
				758.13			12-Jul-99	103.88	654.25	-0.17
	01_MW201	2196636.9	6124259.69	665.99	62	27 - 57	4-Apr-99	36.03	629.96	
				665.99			12-Jul-99	37.15	628.84	-1.12
				665.99			28-Feb-01	42.05	623.94	-4.90
				665.99			10-Sep-01	41.96	624.03	0.09
				665.99			14-Mar-02	42.02	623.97	-0.06
				665.99			23-Sep-02	45.02	620.97	-3.00
				665.99			19-Mar-03	45.26	620.73	-0.24
				665.99			11-Sep-03	45.73	620.26	-0.47
				665.99			18-Mar-04	45.15	620.84	0.58
				665.99			23-Sep-04	47.04	618.95	-1.89
				665.99			16-Mar-05	41.54	624.45	5.50
				665.99			2-Sep-05	37.91	628.08	3.63
				665.99			16-Mar-06	39.17	626.82	-1.26
2	02_DGMW59	2189877.3	6121115.39	506.91	94	69 – 89	12-Jan-96	50.95	455.96	
				506.91			6-Feb-96	51.22	455.69	-0.27
				506.91			28-Feb-96	48.75	458.16	2.47
				506.91			27-Mar-96	48.66	458.25	0.09
				506.91			30-Oct-96	53.28	453.63	-4.62
				506.91			26-Nov-96	51.58	455.33	1.70
				506.91			26-Dec-96	48.46	458.45	3.12
				506.91			23-Jan-97	44.96	461.95	3.50
				506.91			28-Feb-97	43.10	463.81	1.86
				506.91			27-Mar-97	46.20	460.71	-3.10
				506.91			27-Jun-97	50.50	456.41	-4.30
				506.91			11-Aug-97	51.96	454.95	-1.46
				506.91			24-Sep-97	52.54	454.37	-0.58
				506.91			6-Nov-97	53.50	453.41	-0.96
				506.91			9-Nov-98	52.01	454.90	1.49
				506.91			19-Jan-99	53.63	453.28	-1.62
				506.91			22-Apr-99	53.93	452.98	-0.30
				506.91			12-Jul-99	56.03	450.88	-2.10
				506.91			9-Jun-00	57.74	449.17	-1.71
				506.91			19-Feb-01	57.69	449.22	0.05
				506.91			10-Sep-01	60.45	446.46	-2.76
				506.91			6-Mar-02	62.71	444.20	-2.26
				506.91			12-Sep-02	59.63	447.28	3.08
				506.91			11-Sep-03	58.80	448.11	0.83
				506.91			15-Mar-04	58.11	448.80	0.69
				506.91			10-Sep-04	61.76	445.15	-3.65
				506.91			21-Sep-04	61.76	445.15	-3.65
				506.91			11-Mar-05	48.00	458.91	13.76
				506.91			2-Sep-05	50.68	456.23	-2.68
				506.91			15-Mar-06	53.26	453.65	-2.58

Table 3 (continued)
Summary of Historical Water Level Measurements and Groundwater Elevations
Former MCAS El Toro, California

IRP Site	Well ID	Survey Data			Well Depth (feet bgs)	Screen Interval (feet bgs)	Date Measured	Depth to Water (feet BTOC)	Groundwater Elevation (feet MSL)	Water Level Change (feet)
		Northing	Easting	Well TOC Elevation (feet MSL)						
	02NEW2	2189454.63	6120618.85	494.68	100	75 - 95	30-Oct-96	65.83	428.85	
				494.68			26-Nov-96	66.88	427.80	-1.05
				494.68			26-Dec-96	64.58	430.10	2.30
				494.68			23-Jan-97	61.78	432.90	2.80
				494.68			28-Feb-97	60.00	434.68	1.78
				494.68			27-Mar-97	61.98	432.70	-1.98
				494.68			27-Jun-97	65.57	429.11	-3.59
				494.68			11-Aug-97	66.58	428.10	-1.01
				494.68			24-Sep-97	67.00	427.68	-0.42
				494.68			6-Nov-97	67.84	426.84	-0.84
				494.68			9-Nov-98	61.74	432.94	6.10
				494.68			19-Jan-99	63.01	431.67	-1.27
				494.68			22-Apr-99	63.54	431.14	-0.53
				494.68			12-Jul-99	64.03	430.65	-0.49
				494.68			9-Jun-00	66.55	428.13	-2.52
				494.68			19-Feb-01	70.68	424.00	-4.13
				494.68			10-Sep-01	68.95	425.73	1.73
				494.68			6-Mar-02	70.78	423.90	-1.83
				494.68			12-Sep-02	72.61	422.07	-1.83
				494.68			11-Sep-03	71.95	422.73	0.66
				494.68			15-Mar-04	71.16	423.52	0.79
				494.68			10-Sep-04	73.92	420.76	-2.76
				494.68			11-Mar-05	63.45	431.23	10.47
				494.68			2-Sep-05	66.28	428.40	-2.83
				494.68			15-Mar-06	68.06	426.62	-1.78
	02NEW7	2189191.73	6119932.90	479.12	148	103-143	1-Apr-04	126.24	352.88	
				479.12			10-Sep-04	130.20	348.92	-3.96
				479.12			11-Mar-05	112.20	366.92	18.00
				479.12			2-Sep-05	120.09	359.03	-7.89
				479.12			14-Mar-06	122.45	356.67	-2.36
	02NEW8A	2190270.59	6120583.65	512.88	109	84 - 104	30-Oct-96	47.22	465.66	
				512.88			26-Nov-96	46.96	465.92	0.26
				512.88			26-Dec-96	45.03	467.85	1.93
				512.88			23-Jan-97	42.65	470.23	2.38
				512.88			26-Feb-97	40.78	472.10	1.87
				512.88			27-Mar-97	41.78	471.10	-1.00
				512.88			27-Jun-97	45.12	467.76	-3.34
				512.88			11-Aug-97	48.14	464.74	-3.02
				512.88			24-Sep-97	46.64	466.24	1.50
				512.88			6-Nov-97	47.52	465.36	-0.88
				512.88			9-Nov-98	39.58	473.30	7.94
				512.88			19-Jan-99	40.92	471.96	-1.34
				512.88			22-Apr-99	41.47	471.41	-0.55
				512.88			12-Jul-99	43.03	469.85	-1.56
				512.88			21-Jun-00	45.90	466.98	-2.87
				512.88			19-Feb-01	47.67	465.21	-1.77
				512.88			10-Sep-01	48.26	464.62	-0.59
				512.88			6-Mar-02	49.81	463.07	-1.55
				512.88			12-Sep-02	51.35	461.53	-1.54
				512.88			11-Sep-03	57.00	455.88	-5.65
				512.88			15-Mar-04	53.91	458.97	3.09
				512.88			10-Sep-04	54.07	458.81	-0.16

Table 3 (continued)
Summary of Historical Water Level Measurements and Groundwater Elevations
Former MCAS El Toro, California

IRP Site	Well ID	Survey Data: Northing	Survey Data: Easting	Well TOC Elevation (feet MSL)	Well Depth (feet bgs)	Screen Interval (feet bgs)	Date Measured	Depth to Water (feet BTOC)	Groundwater Elevation (feet MSL)	Water Level Change (feet)
	02NEW8A (continued)			512.88			10-Mar-05	49.71	463.17	4.36
				512.88			2-Sep-05	46.70	466.18	3.01
				512.88			15-Mar-06	48.40	464.48	-1.70
	02NEW11	2191693.28	6121769.81	533.85	70	45 - 65	30-Oct-96	27.34	506.51	
				533.85			26-Nov-96	27.92	505.93	-0.58
				533.85			27-Dec-96	26.75	507.10	1.17
				533.85			23-Jan-97	26.00	507.85	0.75
				533.85			26-Feb-97	23.78	510.07	2.22
				533.85			27-Mar-97	23.62	510.23	0.16
				533.85			27-Jun-97	25.78	508.07	-2.16
				533.85			11-Aug-97	27.16	506.69	-1.38
				533.85			24-Sep-97	28.21	505.64	-1.05
				533.85			6-Nov-97	29.50	504.35	-1.29
				533.85			9-Nov-98	18.31	515.54	11.19
				533.85			21-Jan-99	20.03	513.82	-1.72
				533.85			22-Apr-99	21.11	512.74	-1.08
				533.85			12-Jul-99	23.07	510.78	-1.96
				533.85			22-Jun-00	29.16	504.69	-6.09
				533.85			19-Feb-01	30.61	503.24	-1.45
				533.85			10-Sep-01	32.54	501.31	-1.93
				533.85			6-Mar-02	35.97	497.88	-3.43
				533.85			12-Sep-02	41.06	492.79	-5.09
				533.85			12-Sep-03	40.00	493.85	1.06
				533.85			15-Mar-04	42.07	491.78	-2.07
				533.85			10-Sep-04	43.75	490.10	-1.68
				533.85			10-Mar-05	29.78	504.07	13.97
				533.85			2-Sep-05	25.93	507.92	3.85
				533.85			15-Mar-06	30.29	503.56	-4.36
	02NEW15	2190376.17	6121038.87	502.63	70	25-65	9-Nov-98	22.21	480.42	
				502.63			19-Jan-99	23.62	479.01	-1.41
				502.63			22-Apr-99	24.02	478.61	-0.40
				502.63			12-Jul-99	26.21	476.42	-2.19
				502.63			22-Jun-00	29.40	473.23	-3.19
				502.63			19-Feb-01	33.20	469.43	-3.80
				502.63			10-Sep-01	32.09	470.54	1.11
				502.63			6-Mar-02	34.65	467.98	-2.56
				502.63			12-Sep-02	37.63	465.00	-2.98
				502.63			11-Sep-03	36.60	466.03	1.03
				502.63			15-Mar-04	36.51	466.12	0.09
				502.63			10-Sep-04	39.44	463.19	-2.93
				502.63			10-Mar-05	25.80	476.83	13.64
				502.63			2-Sep-05	27.10	475.53	-1.30
				502.63			15-Mar-06	30.32	472.31	-3.22
	02NEW16	2189892.22	6120699.46	491.78	70	25-65	9-Nov-98	35.72	456.06	
				491.78			19-Jan-99	37.11	454.67	-1.39
				491.78			22-Apr-99	37.31	454.47	-0.20
				491.78			12-Jul-99	39.43	452.35	-2.12
				491.78			19-Feb-01	41.02	450.76	-1.59
				491.78			10-Sep-01	44.21	447.57	-3.19
				491.78			6-Mar-02	45.30	446.48	-1.09
				491.78			12-Sep-02	49.12	442.66	-3.82
				491.78			11-Sep-03	49.15	442.63	-0.03

Table 3 (continued)
Summary of Historical Water Level Measurements and Groundwater Elevations
Former MCAS El Toro, California

IRP Site	Well ID	Survey Data			Well Depth (feet bgs)	Screen Interval (feet bgs)	Date Measured	Depth to Water (feet BTOC)	Groundwater Elevation (feet MSL)	Water Level Change (feet)
		Northing	Easting	Well TOC Elevation (feet MSL)						
02NEW16 (continued)				491.78			15-Mar-04	42.89	448.89	6.26
				491.78			10-Sep-04	58.70	433.08	-15.81
				491.78			11-Mar-05	36.96	454.82	21.74
				491.78			2-Sep-05	40.08	451.70	-3.12
				491.78			15-Mar-06	42.45	449.33	-2.37
	02_UGMW25			546.36		55 - 75	12-Jan-96	30.89	515.47	
				546.36			7-Feb-96	30.72	515.64	0.17
				546.36			28-Feb-96	29.60	516.76	1.12
				546.36			27-Mar-96	29.25	517.11	0.35
				546.36			30-Oct-96	36.32	510.04	-7.07
				546.36			26-Nov-96	36.40	509.96	-0.08
				546.36			26-Dec-96	35.52	510.84	0.88
				546.36			23-Jan-97	33.80	512.56	1.72
				546.36			26-Feb-97	31.62	514.74	2.18
				546.36			27-Mar-97	31.64	514.72	-0.02
				546.36			27-Jun-97	34.50	511.86	-2.86
				546.36			11-Aug-97	36.08	510.28	-1.58
				546.36			24-Sep-97	37.35	509.01	-1.27
				546.36			6-Nov-97	38.68	507.68	-1.33
				546.36			9-Nov-98	26.23	520.13	12.45
				546.36			19-Jan-99	27.81	518.55	-1.58
				546.36			22-Apr-99	28.55	517.81	-0.74
				546.36			12-Jul-99	31.42	514.94	-2.87
3	03_DGMW64			418.28		245 - 285	11-Jan-96	231.49	186.79	
				418.28			26-Feb-96	230.46	187.82	1.03
				418.28			27-Mar-96	229.85	188.43	0.61
				418.28			31-Oct-96	229.35	188.93	0.50
				418.28			26-Nov-96	230.25	188.03	-0.90
				418.28			27-Dec-96	229.10	189.18	1.15
				418.28			24-Jan-97	228.13	190.15	0.97
				418.28			26-Feb-97	226.76	191.52	1.37
				418.28			27-Mar-97	227.00	191.28	-0.24
				418.28			26-Jun-97	227.50	190.78	-0.50
				418.28			11-Aug-97	227.96	190.32	-0.46
				418.28			24-Sep-97	227.11	191.17	0.85
				418.28			5-Nov-97	226.50	191.78	0.61
				418.28			9-Nov-98	221.08	197.20	5.42
				418.28			20-Jan-99	218.72	199.56	2.36
				418.28			22-Apr-99	218.43	199.85	0.29
				418.28			9-Jul-99	218.71	199.57	-0.28
	03_DGMW64A	2193462.76	6115384.64	418.16	255	210-250	9-Feb-01	219.08	199.08	
				418.16			11-Sep-01	218.77	199.39	0.31
				418.16			4-Mar-02	216.10	202.06	2.67
				418.16			11-Sep-02	220.60	197.56	-4.50
				418.16			6-Mar-03	222.50	195.66	-1.90
				418.16			11-Sep-03	222.20	195.96	0.30
				418.16			11-Mar-04	227.70	190.46	-5.50
				418.16			9-Sep-04	222.90	195.26	4.80
				418.16			9-Mar-05	222.83	195.33	0.07
				418.16			1-Sep-05	221.70	196.46	1.13
				418.16			14-Mar-06	220.51	197.65	1.19

Table 3 (continued)
Summary of Historical Water Level Measurements and Groundwater Elevations
Former MCAS El Toro, California

IRP Site	Well ID	Survey Data			Well Depth (feet bgs)	Screen Interval (feet bgs)	Date Measured	Depth to Water (feet BTOC)	Groundwater Elevation (feet MSL)	Water Level Change (feet)
		Northing	Easting	Well TOC Elevation (feet MSL)						
	03_DGMW65X			411.90		230 - 270	11-Jan-96	223.57	188.33	
				411.90			26-Feb-96	222.70	189.20	0.87
				411.90			27-Mar-96	222.12	189.78	0.58
				411.90			31-Oct-96	221.58	190.32	0.54
				411.90			26-Nov-96	221.24	190.66	0.34
				411.90			26-Dec-96	220.71	191.19	0.53
				411.90			24-Jan-97	220.44	191.46	0.27
				411.90			26-Feb-97	219.10	192.80	1.34
				411.90			27-Mar-97	219.26	192.64	-0.16
				411.90			26-Jun-97	221.50	190.40	-2.24
				411.90			11-Aug-97	220.20	191.70	1.30
				411.90			24-Sep-97	219.47	192.43	0.73
				411.90			5-Nov-97	219.04	192.86	0.43
				411.90			9-Nov-98	212.43	199.47	6.61
				411.90			19-Jan-99	211.31	200.59	1.12
				411.90			22-Apr-99	210.32	201.58	0.99
				411.90			9-Jul-99	210.43	201.47	-0.11
				411.90			9-Jun-00	213.93	197.97	-3.50
	03_DGMW65XA	2193155.07	6115142.45	409.71	248	201-235	9-Feb-01	212.78	196.93	
				409.71			11-Sep-01	212.28	197.43	0.50
				409.71			4-Mar-02	212.70	197.01	-0.42
				409.71			11-Sep-02	205.30	204.41	7.40
				409.71			6-Mar-03	216.20	193.51	-10.90
				409.71			11-Sep-03	215.45	194.26	0.75
				409.71			11-Mar-04	215.70	194.01	-0.25
				409.71			9-Sep-04	216.08	193.63	-0.38
				409.71			9-Mar-05	217.40	192.31	-1.32
				409.71			1-Sep-05	214.85	194.86	2.55
				409.71			14-Mar-06	213.75	195.96	1.10
	03_UGMW26			420.05		230 - 270	11-Jan-96	220.49	199.56	
				420.05			26-Feb-96	219.68	200.37	0.81
				420.05			27-Feb-96	219.68	200.37	0.00
				420.05			27-Mar-96	219.11	200.94	0.57
				420.05			31-Oct-96	217.40	202.65	1.71
				420.05			26-Nov-96	217.24	202.81	0.16
				420.05			26-Dec-96	216.76	203.29	0.48
				420.05			23-Jan-97	216.44	203.61	0.32
				420.05			26-Feb-97	215.40	204.65	1.04
				420.05			27-Mar-97	215.54	204.51	-0.14
				420.05			26-Jun-97	215.90	204.15	-0.36
				420.05			11-Aug-97	215.66	204.39	0.24
				420.05			24-Sep-97	214.60	205.45	1.06
				420.05			5-Nov-97	214.23	205.82	0.37
				420.05			9-Nov-98	207.74	212.31	6.49
				420.05			19-Jan-99	206.53	213.52	1.21
				420.05			22-Apr-99	205.26	214.79	1.27
				420.05			12-Jul-99	205.18	214.87	0.08
				420.05			19-Jun-00	210.49	209.56	-5.31
				420.05			10-Sep-01	209.90	210.15	0.59
	03_UGMW26A			421.73		195-235	28-Feb-01	219.03	202.70	
				421.73			11-Sep-01	207.24	214.49	11.79
				421.73			5-Mar-02	208.00	213.73	-0.76

Table 3 (continued)
Summary of Historical Water Level Measurements and Groundwater Elevations
Former MCAS El Toro, California

IRP Site	Well ID	Survey Data: Northing	Survey Data: Easting	Well TOC Elevation (feet MSL)	Well Depth (feet bgs)	Screen Interval (feet bgs)	Date Measured	Depth to Water (feet BTOC)	Groundwater Elevation (feet MSL)	Water Level Change (feet)
03_UGMW26A (continued)				421.73			11-Sep-02	208.50	213.23	-0.50
				421.73			6-Mar-03	211.20	210.53	-2.70
	04_DBMW40	2192624.58	6115010.87	400.04	265	220 - 260	11-Jan-96	212.07	187.97	
				400.04			26-Feb-96	211.14	188.90	0.93
				400.04			27-Mar-96	210.66	189.38	0.48
				400.04			31-Oct-96	210.11	189.93	0.55
				400.04			26-Nov-96	209.58	190.46	0.53
				400.04			26-Dec-96	209.08	190.96	0.50
				400.04			24-Jan-97	208.92	191.12	0.16
				400.04			27-Feb-97	208.95	191.09	-0.03
				400.04			27-Mar-97	208.12	191.92	0.83
				400.04			26-Jun-97	207.25	192.79	0.87
				400.04			11-Aug-97	208.90	191.14	-1.65
				400.04			24-Sep-97	208.11	191.93	0.79
				400.04			6-Nov-97	207.44	192.60	0.67
				400.04			9-Nov-98	201.15	198.89	6.29
				400.04			19-Jan-99	200.22	199.82	0.93
				400.04			22-Apr-99	199.08	200.96	1.14
				400.04			9-Jul-99	199.54	200.50	-0.46
				400.04			9-Jun-00	199.14	200.90	0.40
				400.04			9-Feb-01	198.59	201.45	0.55
				400.04			10-Sep-01	198.97	201.07	-0.38
				400.04			5-Mar-02	198.83	201.21	0.14
				400.04			12-Sep-02	200.62	199.42	-1.79
				400.04			6-Mar-03	200.82	199.22	-0.20
				400.04			11-Sep-03	201.95	198.09	-1.13
				400.04			15-Mar-04	201.91	198.13	0.04
				400.04			9-Sep-04	201.80	198.24	0.11
				400.04			10-Mar-05	202.08	197.96	-0.28
				400.04			1-Sep-05	200.01	200.03	2.07
				400.04			14-Mar-06	200.98	199.06	-0.97
	04_DGMW66			401.10		250 - 290	11-Jan-96	212.93	188.17	
				401.10			26-Feb-96	211.91	189.19	1.02
				401.10			27-Mar-96	211.42	189.68	0.49
				401.10			31-Oct-96	211.64	189.46	-0.22
				401.10			26-Nov-96	210.76	190.34	0.88
				401.10			26-Dec-96	210.12	190.98	0.64
				401.10			24-Jan-97	209.82	191.28	0.30
				401.10			27-Feb-97	210.25	190.85	-0.43
				401.10			27-Mar-97	209.26	191.84	0.99
				401.10			26-Jun-97	208.10	193.00	1.16
				401.10			11-Aug-97	210.26	190.84	-2.16
				401.10			25-Sep-97	209.49	191.61	0.77
				401.10			5-Nov-97	204.43	196.67	5.06
				401.10			9-Nov-98	201.93	199.17	2.50
				401.10			19-Jan-99	201.13	199.97	0.80
				401.10			22-Apr-99	200.09	201.01	1.04
				401.10			9-Jul-99	200.72	200.38	-0.63
				401.10			9-Feb-01	199.65	201.45	1.07
				401.10			10-Sep-01	200.14	200.96	-0.49
	04_DGMW66A	2192711.39	6114919.65	399.09	235	190-230	11-Sep-01	200.38	198.71	
				399.09			4-Mar-02	200.90	198.19	-0.52

Table 3 (continued)
Summary of Historical Water Level Measurements and Groundwater Elevations
Former MCAS El Toro, California

IRP Site	Well ID	Survey Data Northing	Easting	Well TOC Elevation (feet MSL)	Well Depth (feet bgs)	Screen Interval (feet bgs)	Date Measured	Depth to Water (feet BTOC)	Groundwater Elevation (feet MSL)	Water Level Change (feet)
04_DGMW66A (continued)				399.09			11-Sep-02	201.70	197.39	-0.80
				399.09			6-Mar-03	202.40	196.69	-0.70
				399.09			9-Sep-03	203.12	195.97	-0.72
				399.09			11-Mar-04	203.40	195.69	-0.28
				399.09			9-Sep-04	203.84	195.25	-0.44
				399.09			9-Mar-05	203.89	195.20	-0.05
				399.09			1-Sep-05	202.95	196.14	0.94
				399.09			14-Mar-06	201.91	197.18	1.04
	04_UGMW63	2192442.16	6115457.09	404.11	280	235 - 275	11-Jan-96	212.50	191.61	
				404.11			30-Jan-96	212.31	191.80	0.19
				404.11			28-Feb-96	211.72	192.39	0.59
				404.11			27-Mar-96	211.22	192.89	0.50
				404.11			31-Oct-96	210.14	193.97	1.08
				404.11			26-Nov-96	209.82	194.29	0.32
				404.11			26-Dec-96	209.30	194.81	0.52
				404.11			24-Jan-97	209.16	194.95	0.14
				404.11			26-Feb-97	207.80	196.31	1.36
				404.11			27-Mar-97	207.80	196.31	0.00
				404.11			26-Jun-97	208.67	195.44	-0.87
				404.11			11-Aug-97	208.64	195.47	0.03
				404.11			25-Sep-97	207.75	196.36	0.89
				404.11			5-Nov-97	207.38	196.73	0.37
				404.11			9-Nov-98	200.32	203.79	7.06
				404.11			19-Jan-99	199.07	205.04	1.25
				404.11			22-Apr-99	197.96	206.15	1.11
				404.11			9-Jul-99	198.21	205.90	-0.25
				404.11			9-Jun-00	197.79	206.32	0.42
				404.11			9-Feb-01	197.22	206.89	0.57
				404.11			10-Sep-01	197.33	206.78	-0.11
				404.11			5-Mar-02	197.42	206.69	-0.09
				404.11			12-Sep-02	199.46	204.65	-2.04
				404.11			6-Mar-03	200.01	204.1	-0.55
				404.11			11-Sep-03	201.20	202.91	-1.19
				404.11			15-Mar-04	201.20	202.91	0.00
				404.11			10-Sep-04	201.80	202.31	-0.60
				404.11			10-Mar-05	201.51	202.6	0.29
				404.11			1-Sep-05	200.55	203.56	0.96
				404.11			16-Mar-06	199.30	204.81	1.25
5	05_DBMW41			424.77		182 - 222	12-Jan-96	163.12	261.65	
				424.77			7-Feb-96	162.82	261.95	0.30
				424.77			28-Feb-96	162.82	261.95	0.00
				424.77			27-Mar-96	162.45	262.32	0.37
				424.77			31-Oct-96	161.60	263.17	0.85
				424.77			26-Nov-96	161.16	263.61	0.44
				424.77			26-Dec-96	161.12	263.65	0.04
				424.77			24-Jan-97	161.16	263.61	-0.04
				424.77			27-Feb-97	159.81	264.96	1.35
				424.77			27-Mar-97	159.86	264.91	-0.05
				424.77			26-Jun-97	159.56	265.21	0.30
				424.77			11-Aug-97	159.72	265.05	-0.16
				424.77			25-Sep-97	159.24	265.53	0.48
				424.77			6-Nov-97	159.52	265.25	-0.28
				424.77			9-Nov-98	153.72	271.05	5.80

Table 3 (continued)
Summary of Historical Water Level Measurements and Groundwater Elevations
Former MCAS El Toro, California

IRP Site	Well ID	Survey Data: Northing	Survey Data: Easting	Well TOC Elevation (feet MSL)	Well Depth (feet bgs)	Screen Interval (feet bgs)	Date Measured	Depth to Water (feet BTOC)	Groundwater Elevation (feet MSL)	Water Level Change (feet)
05_DBMW41 (continued)				424.77			19-Jan-99	153.45	271.32	0.27
				424.77			22-Apr-99	153.02	271.75	0.43
				424.77			12-Jul-99	153.21	271.56	-0.19
				424.77			9-Jun-00	154.25	270.52	-1.04
	05_DBMW41A	2188838.68	6117555.99	426.21	190	145-185	9-Feb-01	157.70	268.51	
				426.21			19-Sep-01	157.15	269.06	0.55
				426.21			4-Mar-02	158.80	267.41	-1.65
				426.21			11-Sep-02	155.80	270.41	3.00
				426.21			6-Mar-03	163.00	263.21	-7.20
				426.21			10-Sep-03	162.50	263.71	0.50
				426.21			11-Mar-04	163.81	262.4	-1.31
				426.21			9-Sep-04	164.57	261.64	-0.76
				426.21			11-Mar-05	164.42	261.79	0.15
				426.21			1-Sep-05	161.85	264.36	2.57
				426.21			14-Mar-06	161.10	265.11	0.75
	05_DGMW67			428.56		187 - 227	12-Jan-96	166.52	262.04	
				428.56			9-Feb-96	166.26	262.30	0.26
				428.56			27-Feb-96	166.19	262.37	0.07
				428.56			27-Mar-96	165.85	262.71	0.34
				428.56			31-Oct-96	165.34	263.22	0.51
				428.56			26-Nov-96	164.80	263.76	0.54
				428.56			26-Dec-96	164.68	263.88	0.12
				428.56			24-Jan-97	164.66	263.90	0.02
				428.56			27-Feb-97	163.20	265.36	1.46
				428.56			27-Mar-97	163.28	265.28	-0.08
				428.56			26-Jun-97	163.20	265.36	0.08
				428.56			11-Aug-97	163.30	265.26	-0.10
				428.56			25-Sep-97	162.80	265.76	0.50
				428.56			7-Nov-97	163.12	265.44	-0.32
				428.56			9-Nov-98	157.86	270.70	5.26
				428.56			19-Jan-99	157.43	271.13	0.43
				428.56			22-Apr-99	157.09	271.47	0.34
				428.56			12-Jul-99	157.29	271.27	-0.20
				428.56			9-Jun-00	158.51	270.05	-1.22
	05_DGMW67A	2189097.05	6117685.05	430.02	195	150-190	9-Feb-01	161.03	268.99	
				430.02			20-Sep-01	160.85	269.17	0.18
				430.02			4-Mar-02	161.20	268.82	-0.35
				430.02			11-Sep-02	160.90	269.12	0.30
				430.02			6-Mar-03	166.65	263.37	-5.75
				430.02			10-Sep-03	164.75	265.27	1.90
				430.02			11-Mar-04	166.43	263.59	-1.68
				430.02			9-Sep-04	167.25	262.77	-0.82
				430.02			11-Mar-05	166.79	263.23	0.46
				430.02			1-Sep-05	164.05	265.97	2.74
				430.02			15-Mar-06	163.29	266.73	0.76
	05_DGMW68			416.95		190 - 210	12-Jan-96	168.71	248.24	
				416.95			26-Feb-96	168.11	248.84	0.60
				416.95			27-Feb-96	168.11	248.84	0.00
				416.95			27-Mar-96	167.79	249.16	0.32
				416.95			31-Oct-96	166.28	250.67	1.51
				416.95			26-Nov-96	165.68	251.27	0.60

Table 3 (continued)
Summary of Historical Water Level Measurements and Groundwater Elevations
Former MCAS El Toro, California

IRP Site	Well ID	Survey Data Northing	Survey Data Easting	Survey Data Well TOC Elevation (feet MSL)	Well Depth (feet bgs)	Screen Interval (feet bgs)	Date Measured	Depth to Water (feet BTOC)	Groundwater Elevation (feet MSL)	Water Level Change (feet)
05_DGMW68 (continued)				416.95			26-Dec-96	165.52	251.43	0.16
				416.95			24-Jan-97	161.51	255.44	4.01
				416.95			27-Feb-97	165.40	251.55	-3.89
				416.95			27-Mar-97	164.82	252.13	0.58
				416.95			26-Jun-97	164.34	252.61	0.48
				416.95			11-Aug-97	164.22	252.73	0.12
				416.95			25-Sep-97	163.47	253.48	0.75
				416.95			6-Nov-97	163.65	253.30	-0.18
				416.95			9-Nov-98	158.84	258.11	4.81
				416.95			19-Jan-99	158.08	258.87	0.76
				416.95			22-Apr-99	157.07	259.88	1.01
				416.95			12-Jul-99	156.95	260.00	0.12
				416.95			9-Jun-00	157.77	259.18	-0.82
	05_DGMW68A	2188678.69	6117264.34	419.61	192	146-186	9-Feb-01	161.04	258.57	
				419.61			20-Sep-01	160.85	258.76	0.19
				419.61			4-Mar-02	162.10	257.51	-1.25
				419.61			11-Sep-02	150.40	269.21	11.70
				419.61			6-Mar-03	166.10	253.51	-15.70
				419.61			10-Sep-03	166.05	253.56	0.05
				419.61			11-Mar-04	167.34	252.27	-1.29
				419.61			9-Sep-04	168.14	251.47	-0.80
				419.61			11-Mar-05	168.36	251.25	-0.22
				419.61			1-Sep-05	166.45	253.16	1.91
				419.61			14-Mar-06	165.29	254.32	1.16
	05NEW1	2188362.65	6116947.67	407.77	208	163 - 203	31-Oct-96	164.04	243.73	
				407.77			26-Nov-96	163.36	244.41	0.68
				407.77			26-Dec-96	162.98	244.79	0.38
				407.77			27-Feb-97	162.05	245.72	0.93
				407.77			27-Mar-97	162.41	245.36	-0.36
				407.77			26-Jun-97	162.23	245.54	0.18
				407.77			11-Aug-97	161.96	245.81	0.27
				407.77			25-Sep-97	160.93	246.84	1.03
				407.77			6-Nov-97	161.08	246.69	-0.15
				407.77			9-Nov-98	158.33	249.44	2.75
				407.77			19-Jan-99	157.50	250.27	0.83
				407.77			22-Apr-99	156.33	251.44	1.17
				407.77			12-Jul-99	156.15	251.62	0.18
				407.77			9-Jun-00	156.33	251.44	-0.18
				407.77			9-Feb-01	157.16	250.61	-0.83
				407.77			10-Sep-01	157.49	250.28	-0.33
				407.77			5-Mar-02	158.09	249.68	-0.60
				407.77			12-Sep-02	158.65	249.12	-0.56
				407.77			6-Mar-03	160.19	247.58	-1.54
				407.77			11-Sep-03	161.35	246.42	-1.16
				407.77			12-Mar-04	164.69	243.08	-3.34
				407.77			10-Sep-04	163.12	244.65	1.57
				407.77			11-Mar-05	163.88	243.89	-0.76
				407.77			1-Sep-05	163.00	244.77	0.88
				407.77			15-Mar-06	161.84	245.93	1.16
	05_UGMW27			437.86		198 - 238	11-Jan-96	169.84	268.02	
				437.86			29-Jan-96	169.72	268.14	0.12
				437.86			28-Feb-96	169.70	268.16	0.02

Table 3 (continued)
Summary of Historical Water Level Measurements and Groundwater Elevations
Former MCAS El Toro, California

IRP Site	Well ID	Survey Data			Well Depth (feet bgs)	Screen Interval (feet bgs)	Date Measured	Depth to Water (feet BTOC)	Groundwater Elevation (feet MSL)	Water Level Change (feet)
		Northing	Easting	Well TOC Elevation (feet MSL)						
05_UGMW27 (continued)				437.86			27-Mar-96	169.32	268.54	0.38
				437.86			31-Oct-96	168.92	268.94	0.40
				437.86			26-Nov-96	168.40	269.46	0.52
				437.86			26-Dec-96	168.34	269.52	0.06
				437.86			23-Jan-97	168.26	269.60	0.08
				437.86			27-Feb-97	166.85	271.01	1.41
				437.86			27-Mar-97	166.62	271.24	0.23
				437.86			27-Jun-97	166.64	271.22	-0.02
				437.86			11-Aug-97	166.98	270.88	-0.34
				437.86			24-Sep-97	166.57	271.29	0.41
				437.86			6-Nov-97	166.92	270.94	-0.35
				437.86			9-Nov-98	160.78	277.08	6.14
				437.86			19-Jan-99	160.85	277.01	-0.07
				437.86			22-Apr-99	160.58	277.28	0.27
				437.86			9-Jul-99	161.11	276.75	-0.53
	05_UGMW27A			439.17		155-195	9-Feb-01	164.51	274.66	
				439.17			10-Sep-01	163.94	275.23	0.57
				439.17			4-Mar-02	165.10	274.07	-1.16
				439.17			11-Sep-02	165.30	273.87	-0.20
				439.17			20-Mar-03	165.40	273.77	-0.10
17	17_DGMW82	2191368.2	6119115.35	442.12	260	235 - 255	12-Jan-96	189.55	252.57	
				442.12			9-Feb-96	192.04	250.08	-2.49
				442.12			28-Feb-96	192.04	250.08	0.00
				442.12			31-Oct-96	185.60	256.52	6.44
				442.12			26-Nov-96	185.50	256.62	0.10
				442.12			26-Dec-96	185.22	256.90	0.28
				442.12			24-Jan-97	184.43	257.69	0.79
				442.12			12-Aug-97	183.64	258.48	0.79
				442.12			9-Nov-98	187.13	254.99	-3.49
				442.12			19-Jan-99	176.93	265.19	10.20
				442.12			22-Apr-99	175.90	266.22	1.03
				442.12			12-Jul-99	175.09	267.03	0.81
				442.12			22-Jun-00	173.98	268.14	1.11
				442.12			27-Feb-01	185.67	256.45	-11.69
				442.12			10-Sep-01	173.15	268.97	12.52
				442.12			14-Mar-02	173.96	268.16	-0.81
				442.12			Sep-02	NA[4]	270.25	2.09
				442.12			3-Mar-03	NM[4]	NM[4]	NM[4]
				442.12			11-Sep-03	179.77	262.35	-7.90
				442.12			15-Mar-04	178.61	263.51	1.16
				442.12			21-Sep-04	182.50	259.62	-3.89
				442.12			11-Mar-05	182.73	259.39	-0.23
				442.12			2-Sep-05	181.00	261.12	1.73
				442.12			15-Mar-06	179.99	262.13	1.01
	17NEW1	2191653.03	6118812.31	431.93	231	186 - 226	31-Oct-96	183.88	248.05	
				431.93			26-Nov-96	183.60	248.33	0.28
				431.93			26-Dec-96	183.22	248.71	0.38
				431.93			24-Jan-97	183.75	248.18	-0.53
				431.93			27-Feb-97	181.98	249.95	1.77
				431.93			27-Mar-97	182.10	249.83	-0.12
				431.93			27-Jun-97	181.90	250.03	0.20
				431.93			12-Aug-97	181.04	250.89	0.86

Table 3 (continued)
Summary of Historical Water Level Measurements and Groundwater Elevations
Former MCAS El Toro, California

IRP Site	Well ID	Survey Data: Northing	Survey Data: Easting	Well TOC Elevation (feet MSL)	Well Depth (feet bgs)	Screen Interval (feet bgs)	Date Measured	Depth to Water (feet BTOC)	Groundwater Elevation (feet MSL)	Water Level Change (feet)
17NEW1 (continued)				431.93			24-Sep-97	180.05	251.88	0.99
				431.93			6-Nov-97	184.02	247.91	-3.97
				431.93			9-Nov-98	174.68	257.25	9.34
				431.93			19-Jan-99	173.34	258.59	1.34
				431.93			22-Apr-99	171.77	260.16	1.57
				431.93			12-Jul-99	170.87	261.06	0.90
				431.93			22-Jun-00	173.46	258.47	-2.59
				431.93			27-Feb-01	173.58	258.35	-0.12
				431.93			10-Sep-01	172.90	259.03	0.68
				431.93			14-Mar-02	173.76	258.17	-0.86
				431.93			12-Sep-02	170.87	261.06	2.89
				431.93			19-Mar-03	173.55	258.38	-2.68
				431.93			11-Sep-03	174.91	257.02	-1.36
				431.93			15-Mar-04	174.11	257.82	0.80
				431.93			21-Sep-04	175.80	256.13	-1.69
				431.93			11-Mar-05	178.10	253.83	-2.30
				431.93			2-Sep-05	176.95	254.98	1.15
				431.93			15-Mar-06	175.65	256.28	1.30
	17NEW2			551.36		83 - 123	31-Oct-96	87.95	463.41	
				551.36			26-Nov-96	88.01	463.35	-0.06
				551.36			26-Dec-96	87.88	463.48	0.13
				551.36			24-Jan-97	88.56	462.80	-0.68
				551.36			27-Feb-97	87.53	463.83	1.03
				551.36			27-Mar-97	87.72	463.64	-0.19
				551.36			12-Aug-97	88.00	463.36	-0.28
				551.36			24-Sep-97	87.50	463.86	0.50
				551.36			6-Nov-97	87.66	463.70	-0.16
				551.36			9-Nov-98	86.22	465.14	1.44
				551.36			29-Jan-99	86.09	465.27	0.13
				551.36			22-Apr-99	85.89	465.47	0.20
				551.36			12-Jul-99	85.79	465.57	0.10

Notes
IRP = Installation Restoration Program
bgs = below ground surface
MSL = mean sea level
TOC = top of well casing, NA = not available or not applicable.
BTOC = below top of casing
NM = not measured
Bold wells were measured during Round 23

Table 4
Historical Summary of Groundwater Sampling Parameters
Former MCAS El Toro, California

Well ID	Date	Temp (°C)	pH	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)
SITE 1							
01-MW201	3/18/2004	21.47	7.61	0.65	4.99	197	1.9
	9/23/2004	22.39	7.38	0.654	6.55	101	2.99
	3/16/2005	21.56	7.43	0.713	6.21	148	1.6
	9/20/2005	22.36	7.28	0.061	5.31	43.4	1.37
	3/16/2006	21.99	7.76	0.576	7.02	141	0.15
SITE 2							
02_DGMW59	3/19/2004	19.61	7.67	0.988	2.14	2.09	1.1
	9/21/2004	21.38	6.62	1.346	2.63	233	0.98
	3/29/2005	18.39	8.04	0.701	5.27	165	6.8
	9/20/2005	21.1	7.14	1	1.81	15.1	0.62
	3/21/2006	18.36	7.19	1.104	4.42	155	0.27
02NEW11	3/18/2004	21.97	7.62	1.023	3.66	174	11.9
	9/20/2004	20.33	6.77	1.155	3.59	133	0.9
	3/29/2005	19.73	7.35	1.201	3.98	120	32
	9/20/2005	20.57	7.18	1.295	1.99	29.8	2.75
	3/21/2006	18.71	7.26	1.141	3.06	143	0
02NEW15	3/18/2004	20.38	7.49	1.424	2.67	201	86
	9/22/2004	22.24	6.68	1.428	3.59	5	47
	3/29/2005	19.46	7.32	1.436	1.88	147	20
	9/21/2005	20.97	7.26	1.13	2.72	49.2	4.6
	3/22/2006	18.52	7.15	1.255	5.61	158	1.97
02NEW16	3/18/2004	19.41	7.56	0.927	7.88	1.69	7.4
	3/29/2005	19.09	7.43	0.836	4.21	185	5.2
	9/21/2005	20.25	7.08	1.3	4.04	23.2	0.1
	3/22/2006	19.61	7.24	1.097	5.05	125	4.13
02NEW2	3/19/2004	20.6	7.63	1.028	4.01	245	3.3
	9/21/2004	22.68	6.68	1.184	3.98	269	1.98
	3/29/2005	20.33	7.34	0.944	5.56	155	5
	9/21/2005	20.99	7.12	1.19	1.18	23.9	0.31
	3/22/2006	20.46	7.29	1.102	3.73	124	0.04
02NEW7	4/1/2004	21	7.84	1.12	6.29	119	4.7
	10/1/2004	23.17	7.13	1.38	4.62	102	2.5
	3/17/2005	20.6	7.04	82.8	7.16	84	0
	9/26/2005	21.99	7.1	1.03	3.22	52.8	2.4
	3/16/2006	21.07	7.13	1.2	9.31	90	0.54
02NEW8A	3/18/2004	21.88	7.5	1.158	3.2	191	9.9
	9/20/2004	23.74	6.66	1.183	3.82	215	0.79
	3/16/2005	22.68	7.26	1.202	5.36	173	0.35
	9/20/2005	22.16	6.86	0.089	1.63	38.6	1.48
	3/16/2006	22.58	7.1	0.863	4.27	81	1.3
SITE 3							
03_DGMW64A	3/24/2004	25.31	7.3	6.58	8.99	35	35
	9/30/2004	24.3	7.44	1.45	6.94	72	27.2
	3/17/2005	25.2	7.31	0.144	10.13	42	15.2
	9/7/2005	24.44	7.32	1.23	8.14	39.5	14.2
	3/15/2006	24.91	7.37	1.19	14.22	94	24.7
03_DGMW65XA	3/23/2004	26.25	7.46	6.36	4.22	27	14
	9/29/2004	25.1	7.63	1.39	7.88	64	3.21
	3/17/2005	24.3	7.31	0.14	5	68	24.1
	9/7/2005	25.6	7.46	1.11	3.9	10.2	13.7
	3/15/2006	25.29	7.29	1.2	5.04	41	5.95

Table 4 (continued)
Historical Summary of Groundwater Sampling Parameters
Former MCAS El Toro, California

Well ID	Date	Temp (°C)	pH	Specific Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)
04_DBMW40	3/25/2004	23.64	7.67	1.4	1.49	-1	38
	9/20/2004	24.55	6.89	1.421	1.8	187	37.9
	3/21/2005	23.54	7.39	1.4	2.57	167	23
	9/20/2005	23.51	7.06	1.39	0.98	34.2	19.9
	3/17/2006	21.63	7.27	1.375	2.17	5	8.1
04_DGMW66A	3/23/2004	25.35	7.13	7.84	0	-28	6.1
	9/29/2004	24.7	7.32	1.72	7.56	18	29
	3/16/2005	25.7	6.91	0.172	0.14	10	1.19
	9/7/2005	26.4	6.98	1.49	0.38	40.2	10.53
	3/16/2006	26.04	7.03	1.3	0	23	1.62
04_UGMW63	3/25/2004	23.47	7.51	1.6	0.57	-12	0
	9/20/2004	23.82	6.7	1.57	1.04	275	0.75
	3/21/2005	23.37	7.17	1.52	2.38	133	3.1
	9/19/2005	25.83	7.13	1.46	2.44	17.3	29.3
	3/16/2006	22.75	7.09	1.407	2.45	41	70
SITE 5							
05_DBMW41A	3/24/2004	23.62	7.22	5.67	4.54	67	3.4
	9/30/2004	22.3	7.43	1.22	8.13	70	20.4
	3/23/2005	22.1	7.16	0.124	6.74	72	30
	9/8/2005	22.77	7.11	1.039	5.14	56	6.23
	3/15/2006	22.36	7.14	1.02	6.98	126	0.8
05_DGMW67A	3/24/2004	23.01	7.25	5.83	4.8	40	110
	9/30/2004	23	7.41	1.27	8.18	61	60.6
	3/31/2005	22.1	7.16	0.137	6.45	70	34
	9/20/2005	22.53	7.1	1.18	3.12	29.8	1.75
	3/17/2006	19.83	7.24	1.085	5.37	31	0
05_DGMW68A	3/24/2004	22.92	7.19	5.69	4.81	80	16
	9/30/2004	22.6	7.4	1.21	7.91	92	19.1
	3/18/2005	22.9	7.07	0.129	6.15	115	2
	9/8/2005	23.42	7.14	1.029	5.06	63.4	4.37
	3/16/2006	23.14	7.2	0.893	7.49	140	3.31
05NEW1	3/24/2004	23.02	7.42	1.26	5.69	-56	19
	9/16/2004	23.57	6.53	1.259	7.72	239	35.8
	3/21/2005	22.31	7.3	1.236	7.55	190	30
	9/23/2005	21.93	6.79	1.18	1.4	67	17
	3/17/2006	19.82	7.05	1.141	8.5	13	5.8
SITE 17							
17_DGMW82	3/19/2004	22.69	7.64	1.134	2.94	201	42.6
	9/21/2004	23.52	6.97	1.41	1.69	340	73.2
	3/16/2005	22.48	7.29	1.141	2.98	176	12
	9/22/2005	22.68	7.26	1.04	2.38	25	9.9
	3/22/2006	22.65	7.27	0.952	2.24	104	3.55
17NEW1	3/19/2004	23.46	7.56	1.133	3.44	193	110
	9/21/2004	23.83	7.01	0.981	3.07	340	273
	3/16/2005	22.58	7.39	0.967	3.95	174	120
	9/22/2005	24.15	7.29	0.85	2.83	40.4	40
	3/20/2006	20.74	7.2	1.126	4.53	195	51.8

Notes:

The dissolved oxygen measurements greater than about 9 mg/L (approximate saturation concentration) are probably not valid and may indicate a sensor malfunction.

Acronyms:

°C - degrees centigrade
mg/L - milligrams per liter
mV - millivolts
NM - not measured due to equipment failure
NTU - nephelometric turbidity units
ORP - oxidation-reduction potential
µS/cm - microsiemens per centimeter

Table 5
Detected Volatile Organic Compounds in Groundwater
Former MCAS El Toro, California

Site	Station ID	Base Screen Depth (ft. bgs)	Sample Date	Primary VOCs Detected and Regulatory Standards Concentrations in µg/L								
				TCE	PCE	CCl4	1,1-DCE	1,2-DCE (Total)	Chloro-form	Benzene	Other Compounds Detected	
				5	5	0.5	6	6	100	1		Result
Site 1	01-DGMW57	83	27-Jul-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
Site 1	01-DGMW58	77	6-Aug-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U	Methyl Disulfide	11 JN
Site 1	01MW101	77	6-Aug-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
Site 1	01MW102	135	28-Jul-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
Site 1	01_MW201	57	28-Jul-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			25-Sep-01	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			14-Mar-02	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U		
			23-Sep-02	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U		
			19-Mar-03	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U	1,2-Dichloroethane	0.4 J
			22-Sep-03	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U		
			18-Mar-04	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U		
			23-Sep-04	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		
			16-Mar-05	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U	Acetone	2 J
			20-Sep-05	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		
			16-Mar-06	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		
Site 2	02_DGMW59	89	15-Dec-92	0.6 J	1 U	1 U	1 U	1 U	1 U	1 U		
			23-Jun-93	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			6-Feb-96	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			6-Feb-96	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			4-Nov-96	0.7 J	1 U	1 U	1 U	1 U	1 U	1 U		
			26-Mar-97	1 U	1 U	1 U	1 U	1 U	1 J	1 U	Bromodichloromethane	0.6 J
			26-Mar-97								Chlorodibromomethane	0.7 J
			26-Mar-97								Methylene Chloride	2
			3-Jul-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			28-Oct-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U	Methylene Chloride	0.4 J
			7-Oct-98	1 U	1 U	1 U	1 U	1 U	1 U	1 U		

Table 5 (continued)
Detected Volatile Organic Compounds in Groundwater
Former MCAS El Toro, California

Site	Station ID	Base Screen Depth (ft. bgs)	Sample Date	TCE	PCE	CCl4	1,1-DCE	1,2-DCE (Total)	Chloro-form	Benzene	Other Compounds Detected	Result
				Primary VOCs Detected and Regulatory Standards Concentrations in µg/L								
				5	5	0.5	6	6	100	1		Result
Site 2	02_DGMW59 (cont.)		27-Jan-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			3-May-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			21-Jul-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			20-Jun-00	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			25-Sep-01	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1,4-Dichlorobenzene	0.4 J
			25-Sep-01								Dichlorodifluoromethane	0.3 J
			14-Mar-02	1 U	1 U	0.5 UJ	1 U	1 U	1 U	1 U		
			23-Sep-02	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U		
			24-Sep-03	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U	Dichlorodifluoromethane	0.4 J
			19-Mar-04	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U		
			21-Sep-04	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		
			29-Mar-05	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U	Acetone	1 J
			21-Sep-05	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		
			21-Mar-06	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		
Site 2	02_DGMW60	100	18-Nov-92	**82**	**8**	1 U	1 U	**8**	6	1 U	1,2-Dichloroethane	**0.9 J**
			23-Jun-93	**61**	**6**	1 U	1 U	5	5	1 U	1,1,2-Trichloroethane	2
			23-Jun-93								1,2-Dichloroethane	**0.6 J**
			15-Aug-95	**91**	4.6 J	0.5 U	0.5 U	8 J	5.6 J	1 U	1,2-Dichloroethane	**0.8 J**
			15-Aug-95								1,1,2 Trichloroethane	1.7 J
			28-Nov-95	81	4 J	6 U	2 U	1 U	5.1	1 U		
			6-Feb-96	**98**	4	1 U	1 U	1	6	1 U	1,1,2-Trichloroethane	2
			6-Feb-96	**98**	3	1 U	1 U	0.8 J	5	1 U	1,1,2-Trichloroethane	2
			4-Nov-96	**203**	**7**	1 U	1 U	**20**	17	1 U	1,1,2-Trichloroethane	**6**
			4-Nov-96								1,2-Dichloroethane	**2**
			26-Mar-97	**150**	5 J	10 U	10 U	**10**	10	10 U	1,1,2-Trichloroethane	5 J
			26-Mar-97								Chlorodibromomethane	5 J
			1-Jul-97	**160**	5	1 U	1 U	**18**	18	1 U	1,1,2-Trichloroethane	**6**
			1-Jul-97								1,2-Dichloroethane	**2**
			1-Jul-97								Bromomethane	0.7 J
			28-Oct-97	**190**	**6**	1 U	1 U	**21**	20	1 U	1,1,2-Trichloroethane	**7**

Table 5 (continued)
Detected Volatile Organic Compounds in Groundwater
Former MCAS El Toro, California

Site	Station ID	Base Screen Depth (ft. bgs)	Sample Date	TCE	PCE	CCl4	1,1-DCE	1,2-DCE (Total)	Chloro-form	Benzene	Other Compounds Detected	
				Primary VOCs Detected and Regulatory Standards Concentrations in µg/L								
				5	5	0.5	6	6	100	1		Result
Site 2	02_DGMW60 (cont.)		28-Oct-97								1,2-Dichloroethane	2
			28-Oct-97	190	6			22	21	1 U	1,1,2-Trichloroethane	7
			28-Oct-97			1 U	1 U				1,2-Dichloroethane	2
			28-Oct-97								1,2-Dichloropropane	0.3 J
			12-Oct-98	130	4.2			16.3	16	1 U	1,1,2-Trichloroethane	6.2
			12-Oct-98								1,2-Dichloroethane	1.3 J
			25-Jan-99	130	4.6	1 U	1 U	16.2	18	1 U	1,1,2-Trichloroethane	5.9
			25-Jan-99								1,2-Dichloroethane	1.8
			3-May-99	130	4.4	1 U	1 U	15	16	1 U	1,1,2-Trichloroethane	5
			3-May-99								1,2-Dichloroethane	1.5
			3-May-99								1,2-Dichloropropane	0.2 J
			19-Jul-99	140	4.7	1 U	1 U	16.2	18	1 U	1,1,2-Trichloroethane	5.9
			19-Jul-99								1,2-Dichloroethane	2.1
			21-Jun-00	100	3	1 U	1 U	10	11	1 U	1,1,2-Trichloroethane	4
			21-Jun-00								1,2-Dichloroethane	1
			25-Sep-01	110	3	0.5 U	1 U	12	14	1 U	1,1,2-Trichloroethane	5
			25-Sep-01								1,2-Dichloroethane	2
			14-Mar-02	92	5	0.5 U	1 U	13	15	1 U	Bromodichloromethane	0.9 J
			14-Mar-02								1,2-Dichloroethane	2
			14-Mar-02								1,1,2-Trichloroethane	5
			23-Sep-02	120	4	0.5 U	1 U	15	16	1 U	1,1,2-Trichloroethane	5
			23-Sep-02								1,2-Dichloroethane	2
Site 2	02_DGMW61	100	14-Dec-92	1	2	1 U	1 U	1 U	1 U	1 U		
			22-Jun-93	2	4	1 U	1 U	1 U	1 U	1 U		
			16-Aug-95	1 U	13	1 U	1 U	1 U	1 U	1 U		
			29-Nov-95	1 U	19	1 U	1 U	1 U	1 U	1 U		
			8-Feb-96	1 U	14	1 U	1 U	1 U	1 U	1 U		
			4-Nov-96	1 U	20	1 U	1 U	1 U	1 U	1 U		
			26-Mar-97	0.8 J	12	1 U	1 U	1 U	1 U	1 U		
			2-Jul-97	1 U	10	1 U	1 U	1 U	1 U	1 U		

Table 5 (continued)
Detected Volatile Organic Compounds in Groundwater
Former MCAS El Toro, California

Site	Station ID	Base Screen Depth (ft. bgs)	Sample Date	Primary VOCs Detected and Regulatory Standards Concentrations in µg/L								
				TCE	PCE	CCl4	1,1-DCE	1,2-DCE (Total)	Chloro-form	Benzene	Other Compounds Detected	
				5	5	0.5	6	6	100	1		Result
Site 2	02_DGMW61 (cont.)		28-Oct-97	0.9 J	11	1 U	1 U	1 U	1 U	1 U		
			8-Oct-98	1 U	5.2	1 U	1 U	1 U	1 U	1 U		
			25-Jan-99	0.5 J	6.2	1 U	1 U	1 U	1 U	1 U		
			27-Apr-99	0.5 J	6	1 U	1 U	1 U	1 U	1 U		
			19-Jul-99	1 U	6	1 U	1 U	1 U	1 U	1 U		
			21-Jun-00	1 U	3	1 U	1 U	1 U	1 U	1 U		
			25-Sep-01	1 U	3	1 U	1 U	1 U	1 U	1 U		
			14-Mar-02	1 U	2	0.5 U	1 U	1 U	1 U	1 U		
			23-Sep-02	1 U	4	0.5 U	1 U	1 U	1 U	1 U		
Site 2	02NEW2	95	21-Dec-95	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			26-Nov-96	1	1 U	1 U	1 U	1 U	1 U	1 U		
			26-Mar-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			3-Jul-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			27-Oct-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U	Methylene Chloride	0.4 J
			8-Oct-98	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			27-Jan-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			4-May-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			20-Jul-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			20-Jun-00	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			25-Sep-01	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			14-Mar-02	1 U	1 U	0.5 UJ	1 U	1 U	1 U	1 U		
			23-Sep-02	1 U	1 U	0.5 U	1 U	1 U	0.5 J	1 U	Bromodichloromethane	0.6 J
			29-Sep-03	1 U	1 U	0.5 U	1 U	1 U	0.3 J	1 U		
			19-Mar-04	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U		
			21-Sep-04	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		
			29-Mar-05	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U	Acetone	1 J
			21-Sep-05	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		
			22-Mar-06	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		

Table 5 (continued)
Detected Volatile Organic Compounds in Groundwater
Former MCAS El Toro, California

Site	Station ID	Base Screen Depth (ft. bgs)	Sample Date	TCE	PCE	CCl4	1,1-DCE	1,2-DCE (Total)	Chloro-form	Benzene	Other Compounds Detected	Result
				Primary VOCs Detected and Regulatory Standards Concentrations in µg/L								
				5	5	0.5	6	6	100	1		Result
Site 2	02NEW7	143	21-Dec-95	1 U	0.3 J	1 U	1 U	1 U	1 U	1 U		
			8-Jan-97	2	1 U	1 U	1 U	1 U	1 U	1 U		
			20-Mar-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			11-Jul-97	8	1 U	1 U	1 U	1 U	1 U	1 U	1,2-dichloropropane	3
			22-Oct-97	1 U	1 U	1 U	1 U	1 U	0.3 J	1 U	1,2-dichloropropane	0.5 J
			1-Apr-04	2	1 U	0.5 U	1 U	1 U	1 U	1 U		
			1-Oct-04	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		
			17-Mar-05	1	1 U	0.5 U	1 U	2 U	0.3 J	1 U		
			26-Sep-05	1	2	0.5 U	1 U	2 U	1 U	1 U	Chlorobenzene	0.3 J
			26-Sep-05								Freon-113	0.8 J
			16-Mar-06	32	0.9 J	0.5 U	1 U	2 U	1 U	1 U	Chlorobenzene	0.4 J
			16-Mar-06								Toluene	0.4 J
Site 2	02NEW8A	104	27-Dec-95	1 U	16	1 U	1 U	1 U	1 U	1 U		
			7-Nov-96	1 U	19	1 U	1 U	1 U	1 U	1 U		
			25-Mar-97	1 U	11	1 U	1 U	1 U	1 U	1 U		
			2-Jul-97	1 U	12	1 U	1 U	1 U	1 U	1 U		
			27-Oct-97	0.6 J	12	1 U	1 U	1 U	1 U	1 U		
			14-Oct-98	1 U	14	1 U	1 U	1 U	1 U	1 U	Dichlorodifluoromethane	0.6 J
			14-Oct-98	1 U	13	1 U	1 U	1 U	1 U	1 U	Dichlorodifluoromethane	0.6 J
			28-Jan-99	1 U	13	1 U	1 U	1 U	1 U	1 U		
			27-Apr-99	1 U	9.3	1 U	1 U	1 U	1 U	1 U	Dichlorodifluoromethane	0.4 J
			20-Jul-99	1 U	14	1 U	1 U	1 U	1 U	1 U	Dichlorodifluoromethane	1.1
			21-Jun-00	1 U	7	1 U	1 U	1 U	1 U	1 U		
			25-Sep-01	0.5 J	5	1 U	1 U	1 U	0.8 J	1 U		
			7-Mar-02	1	3	0.5 U	1 U	1 U	1	1 U		
			23-Sep-02	2	3	0.5 U	1 U	1 U	2	1 U		
			23-Sep-03	0.4 J	3	0.5 U	1 U	1 U	1 U	1 U		
			18-Mar-04	1 U	3	0.5 U	1 U	1 U	1 U	1 U	Methyl-tertiary-butyl-ether	0.3 J
			20-Sep-04	0.3 J	2	0.5 U	1 U	2 U	1 U	1 U		
			16-Mar-05	1 U	8	0.5 U	1 U	2 U	0.3 J	1 U	Acetone	3 J

Table 5 (continued)
Detected Volatile Organic Compounds in Groundwater
Former MCAS El Toro, California

Site	Station ID	Base Screen Depth (ft. bgs)	Sample Date	Primary VOCs Detected and Regulatory Standards Concentrations in µg/L								
				TCE	PCE	CCl4	1,1-DCE	1,2-DCE (Total)	Chloro-form	Benzene	Other Compounds Detected	
				5	5	0.5	6	6	100	1		Result
Site 2	02NEW8A (cont.)		20-Sep-05	1 U	6	0.5 U	1 U	2 U	1 U	1 U		
			16-Mar-06	1 U	8	0.5 U	1 U	2 U	1 U	1 U		
Site 2	02NEW11	65	21-Dec-95	1 U	2	1 U	1 U	1 U	1 U	1 U		
			12-Nov-96	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			25-Mar-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			8-Jul-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			23-Oct-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			14-Oct-98	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			21-Jan-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			26-Apr-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			15-Jul-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			22-Jun-00	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			25-Sep-01	1 U	1 U	1 U	1 U	1 U	4	1 U	Bromodichloromethane	5 J
			25-Sep-01								Bromoform	0.7 J
			25-Sep-01								Chlorodibromomethane	4 J
			14-Mar-02	1 U	1 U	0.5 UJ	1 U	1 U	3	1 U	Bromodichloromethane	4
			14-Mar-02								Chlorodibromomethane	3
			23-Sep-02	1 U	1 U	0.5 U	1 U	1 U	2	1 U	Acetone	1 J
			23-Sep-02								Bromodichloromethane	2
			23-Sep-02								Chlorodibromomethane	1
			22-Sep-03	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U		
			18-Mar-04	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U		
			20-Sep-04	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		
			29-Mar-05	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		
			20-Sep-05	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		
			21-Mar-06	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		
Site 2	02NEW15	65	12-Oct-98	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			1-Feb-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			26-Apr-99	1 U	1 U	1 U	1 U	0.4	1 U	1 U	1,2 Dichlorobenzene	3.5

Table 5 (continued)
Detected Volatile Organic Compounds in Groundwater
Former MCAS El Toro, California

Site	Station ID	Base Screen Depth (ft. bgs)	Sample Date	Primary VOCs Detected and Regulatory Standards Concentrations in µg/L								
				TCE	PCE	CCl4	1,1-DCE	1,2-DCE (Total)	Chloro-form	Benzene	Other Compounds Detected	
				5	5	0.5	6	6	100	1		Result
Site 2	02NEW15 (cont.)		26-Apr-99			1 U	1 U				Chlorobenzene	0.6
			26-Apr-99			1 U	1 U				Dichlorodifluoromethane	0.5
			19-Jul-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			22-Jun-00	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			25-Sep-01	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			14-Mar-02	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U		
			23-Sep-02	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U		
			22-Sep-03	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U		
			18-Mar-04	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U		
			23-Sep-04	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		
			29-Mar-05	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		
			21-Sep-05	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		
			22-Mar-06	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U	Chlorobenzene	0.5 J
			22-Mar-06								1,4-dichlorobenzene	0.7 J
			22-Mar-06								1,2-dichlorobenzene	0.7 J
Site 2	02NEW16	65	8-Oct-98	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			26-Jan-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			4-May-99	1 U	0.3 J	1 U	1 U	1 U	1 U	1 U		
			21-Jul-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			25-Sep-01	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			14-Mar-02	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U		
			23-Sep-02	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U		
			22-Sep-03	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U	Bromethane	1
			22-Sep-03								Toluene	0.4 J
			22-Sep-03								Xylenes (Total)	0.3 J
			18-Mar-04	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U		
			29-Mar-05	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U	Acetone	1 J
			21-Sep-05	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		
			22-Mar-06	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		

Table 5 (continued)
Detected Volatile Organic Compounds in Groundwater
Former MCAS El Toro, California

Site	Station ID	Base Screen Depth (ft. bgs)	Sample Date	Primary VOCs Detected and Regulatory Standards Concentrations in µg/L								
				TCE	PCE	CCl4	1,1-DCE	1,2-DCE (Total)	Chloro-form	Benzene	Other Compounds Detected	
				5	5	0.5	6	6	100	1		Result
Site 2	02_UGMW25	75	12-Sep-92	0.9 J	1 U	1 U	1 U	1 U	1 U	1 U		
			22-Jun-93	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			7-Feb-96	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			17-Aug-95	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			28-Nov-95	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			12-Nov-96	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			26-Mar-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			8-Jul-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			23-Oct-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			7-Oct-98	1 U	1 U	1 U	1 U	1 U	1 U	1 U	Toluene	0.8 J
			1-Feb-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			26-Apr-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			15-Jul-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
Site 3	03_DGMW64	285	15-Jan-93	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			6-Feb-93	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			26-Feb-96	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			12-Nov-96	1 U	1 U	1 U	1 U	1 U	1	1 U		
			12-Nov-96	1 U	1 U	1 U	1 U	1 U	1	1 U		
			4-Mar-97	1 U	1 U	1 U	1 U	1 U	0.8 J	1 U	Methylene Chloride	3
			30-Jun-97	1 U	1 U	1 U	1 U	1 U	0.9 J	1 U		
			16-Oct-97	1 U	1 U	1 U	1 U	1 U	0.8 J	1 U		
			13-Oct-98	1 U	1 U	1 U	1 U	1 U	0.7 J	1 U		
			2-Feb-99	1 U	1 U	1 U	1 U	1 U	0.8 J	1 U		
			6-May-99	1 U	1 U	1 U	1 U	1 U	0.9 J	1 U		
			26-Jul-99	1 U	1 U	1 U	1 U	1 U	1.3	1 U		
Site 3	03_DGMW64A	250	15-Feb-01	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	0.8 J	10 UJ	Bromodichloromethane	0.4 J
			17-Sep-01	1 U	1 U	1 U	1 UJ	1 UJ	1	1 U	Bromodichloromethane	0.6 J
			8-Mar-02	1 U	1 U	0.5 U	1 U	1 U	1	1 U	Bromodichloromethane	0.7 J
			25-Sep-02	1 U	1 U	0.5 U	1 U	1 U	1	1 U	Bromodichloromethane	0.8 J

Table 5 (continued)
Detected Volatile Organic Compounds in Groundwater
Former MCAS El Toro, California

Site	Station ID	Base Screen Depth (ft. bgs)	Sample Date	TCE	PCE	CCl4	1,1-DCE	1,2-DCE (Total)	Chloro-form	Benzene	Other Compounds Detected	
				Primary VOCs Detected and Regulatory Standards Concentrations in µg/L								
				5	5	0.5	6	6	100	1		Result
Site 3	03_DGMW64A (cont.)		17-Mar-03	1 U	1 U	0.5 U	1 U	1 U	1	1 U		
			22-Sep-03	1 U	1 U	0.5 U	1 U	1 U	1	1 U	Bromodichloromethane	0.6 J
			24-Mar-04	1 U	1 U	0.5 U	1 U	1 U	1	1 U	Bromodichloromethane	0.3 J
			30-Sep-04	1 U	1 U	0.5 U	1 U	2 U	1	1 U	Bromodichloromethane	0.3 J
			17-Mar-05	1 U	1 U	0.5 U	1 U	2 U	1	1 U	Acetone	2 J
			17-Mar-05								Bromodichloromethane	0.4 J
			7-Sep-05	1 U	1 U	0.5 U	1 U	2 U	0.9 J	1 U		
			15-Mar-06	1 U	1 U	0.5 U	1 U	2 U	1	1 U		
Site 3	03_DGMW65X	270	18-Jan-93	1 U	1 U	1 U	1 U	1 U	1	1 U		
			7-Jul-93	1 U	1 U	1 U	1 U	1 U	1	1 U		
			26-Feb-96	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			11-Nov-96	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			4-Mar-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U	Methylene Chloride	1
			30-Jun-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			15-Oct-97	1 U	1 U	1 U	1 U	1 U	0.5 J	1 U		
			13-Oct-98	1 U	1 U	1 U	1 U	1 U	0.8 J	1 U		
			29-Jan-99	1 U	1 U	1 U	1 U	1 U	0.9 J	1 U		
			7-May-99	1 U	1 U	1 U	1 U	1 U	0.7 J	1 U		
			26-Jul-99	1 U	1 U	1 U	1 U	1 U	0.9 J	1 U		
			19-Jun-00	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
Site 3	03_DGMW65XA	235	15-Feb-01	10 U	10 U	10 U	10 U	10 U	10 U	10 U	Freon-113	4 J
			17-Sep-01	1 U	1 U	1 U	0.3 J	1 UJ	1 U	1 U	Freon-113	12
			8-Mar-02	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U	Freon-113	7
			1-Oct-02	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U	Freon-113	8
			17-Mar-03	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U	Freon-113	3
			17-Mar-03								Acetone	0.5 J
			22-Sep-03	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U	Freon-113	17
			23-Mar-04	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U	Freon-113	5
			29-Sep-04	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U	Freon-113	5

Table 5 (continued)
Detected Volatile Organic Compounds in Groundwater
Former MCAS El Toro, California

Site	Station ID	Base Screen Depth (ft. bgs)	Sample Date	Primary VOCs Detected and Regulatory Standards Concentrations in µg/L								
				TCE	PCE	CCl4	1,1-DCE	1,2-DCE (Total)	Chloro- form	Benzene	Other Compounds Detected	
				5	5	0.5	6	6	100	1		Result
Site 3	03_DGMW65XA (cont.)		17-Mar-05	1 U	1 U	0.5 U	1 U	2 U	0.3 J	1 U	Freon-113	15
			7-Sep-05	1 U	1 U	0.5 U	1 U	2 U	0.3 J	1 U	Freon-113	15
			15-Mar-06	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U	Freon-113	12
Site 3	03_UGMW26	270	10-Jan-92	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			23-Jun-93	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			27-Feb-96	0.3 J	0.6 J	1 U	1 U	1 U	1 U	1 U		
			14-Nov-96	1	2	1 U	1 U	1 U	1 U	1 U		
			14-Nov-96	1	2	1 U	1 U	1 U	1 U	1 U		
			6-Mar-97	1 J	2	1 U	1 U	1 U	1 U	1 U	Methylene Chloride	1
			1-Jul-97	0.8 J	1	1 U	1 U	1 U	1 U	1 U		
			17-Oct-97	0.9 J	2	1 U	1 U	1 U	1 U	1 U	Methylene Chloride	0.6 J
			13-Oct-98	0.9 J	1.1	1 U	1 U	1 U	1 U	1 U		
			3-Feb-99	1 J	1.3	1 U	1 U	1 U	1 U	1 U		
			5-May-99	1	1.4	1 U	1 U	1 U	1 U	1 U		
			22-Jul-99	1.2	1.4	1 U	1 U	1 U	1 U	1 U		
			19-Jun-00	0.8 J	1	1 U	1 U	1 U	1 U	1 U		
			20-Sep-01	1	1	1 U	1 U	1 U	1 U	1 U		
Site 3	03_UGMW26A	235	28-Feb-01	0.3 J	0.6 J	10 U	10 U	10 U	0.5 J	10 U		
			20-Sep-01	1 U	1 U	1 U	1 U	1 U	0.4 J	1 U		
			19-Mar-02	1 U	0.3 J	0.5 U	1 U	1 U	0.4 J	1 U		
			2-Oct-02	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U		
			21-Mar-03	1 U	1 U	0.5 U	1 U	1 U	0.3 J	1 U		
Site 3	04_DBMW40	260	12-Mar-92	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2-Hexanone	7
			24-Jun-93	1 U	1 U	1 U	1 U	1 U	1 U	**4**		
			12-Nov-96	1 U	1 U	1 U	1 U	1 U	1 U	**40**		
			5-Mar-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U	Methylene Chloride	1
			30-Jun-97	1 U	1 U	1 U	1 U	1 U	1 U	**14**		

Table 5 (continued)
Detected Volatile Organic Compounds in Groundwater
Former MCAS El Toro, California

Site	Station ID	Base Screen Depth (ft. bgs)	Sample Date	TCE	PCE	CCl4	1,1-DCE	1,2-DCE (Total)	Chloro-form	Benzene	Other Compounds Detected	Result
				Primary VOCs Detected and Regulatory Standards Concentrations in µg/L								
				5	5	0.5	6	6	100	1		
Site 3	04_DBMW40 (cont.)		16-Oct-97	1 U	1 U	1 U	1 U	1 U	1 U	2		
			15-Oct-98	1 U	1 U	1 U	1 U	1 U	1 U	1 U	Toluene	0.8 J
			4-Feb-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			5-May-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			26-Jul-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			19-Jun-00	1 U	1 U	1 U	1 U	1 U	1 U	1 U	4-Methyl-2-Pentanone	2 J
			20-Sep-01	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			15-Mar-02	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U		
			18-Sep-02	1 U	1 U	0.5 U	1 U	1 U	1 U	0.7 J		
			13-Mar-03	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U		
			23-Sep-03	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U		
			25-Mar-04	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U		
			20-Sep-04	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		
			21-Mar-05	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		
			20-Sep-05	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		
			17-Mar-06	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		
Site 3	04_DGMW66	290	14-Jan-93	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			24-Jun-93	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			26-Feb-96	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			12-Nov-96	1 U	1 U	1 U	1 U	1 U	1 U	0.7 J		
			4-Mar-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			1-Jul-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			15-Oct-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			16-Oct-98	1 U	1 U	1 U	1 U	1 U	1 U	1 U	Toluene	0.8 J
			4-Feb-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			11-May-99	1 U	1 U	1 U	1 U	1 U	0.4 J	1 U	Silane	1.1 JN
			23-Jul-99	1 U	1 U	1 U	1 U	1 U	0.5 J	1 U		
			20-Sep-01	1 U	1 U	1 U	1 UJ	1 UJ	1 U	1 U		

Table 5 (continued)
Detected Volatile Organic Compounds in Groundwater
Former MCAS El Toro, California

Site	Station ID	Base Screen Depth (ft. bgs)	Sample Date	Primary VOCs Detected and Regulatory Standards Concentrations in µg/L								
				TCE	PCE	CCl4	1,1-DCE	1,2-DCE (Total)	Chloro-form	Benzene	Other Compounds Detected	
				5	5	0.5	6	6	100	1		Result
Site 3	04_DGMW66A	230	20-Sep-01	1 U	1 U	1 U	1 U	1 U	1 U	**150**	Cyclohexane	0.9 J
			20-Sep-01								Isopropylbenzene	0.6 J
			20-Sep-01								Xylenes	3
			11-Mar-02	1 U	1 U	0.5 U	1 U	1 U	1 U	**76 J**	Bromomethane	0.8 J
			11-Mar-02								Xylenes	2 J
			30-Sep-02	1 U	1 U	0.5 U	1 U	1 U	1 U	**65**	Xylenes	1
			17-Mar-03	1 U	1 U	0.5 U	1 U	1 U	1 U	**90**	Xylenes	1
			25-Sep-03	1 U	1 U	0.5 U	1 U	1 U	1 U	**5**	Bromomethane	2
			23-Mar-04	1 U	1 U	0.5 U	1 U	1 U	1 U	**3**		
			29-Sep-04	1 U	1 U	0.5 U	1 U	2 U	1 U	**5**		
			16-Mar-05	1 U	1 U	0.5 U	1 U	2 U	1 U	**3**		
			7-Sep-05	1 U	1 U	0.5 U	1 U	2 U	1 U	**1**		
			16-Mar-06	1 U	1 U	0.5 U	1 U	2 U	1 U	**1**		
Site 3	04_UGMW63	275	24-Nov-92	1 U	1 U	1 U	1 U	1 U	1 U	**3**	Methylene Chloride	2
			25-Jun-93	1 U	1 U	1 U	1 U	1 U	1 U	**4**	Methylene Chloride	0.6 J
			30-Jan-96	1 U	1 U	1 U	1 U	1 U	1 U	**3**		
			14-Nov-96	1 U	1 U	1 U	1 U	1 U	1 U	**7**		
			14-Nov-96	1 U	1 U	1 U	1 U	1 U	1 U	**7**		
			15-Oct-98	1 U	1 U	1 U	1 U	1 U	1 U	1 U	Toluene	0.8 J
			4-Feb-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			5-May-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U	Butane	1.5 JN
			26-Jul-99	1 U	1 U	1 U	1 U	1 U	1 U	0.9 J	Unknown C8H18	5.3 J
			26-Jul-99								Unknown Substituted Alkane	2.1 J
			26-Jul-99								Unknown Substituted Alkane	2.5 J
			26-Jul-99								Unknown Substituted Alkane	3.4 J
			19-Jun-00	1 U	1 U	1 U	1 U	1 U	1 U	0.9 J		
			20-Sep-01	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			15-Mar-02	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U		
			18-Sep-02	1 U	1 U	0.5 U	1 U	1 U	1 U	0.3 J		
			13-Mar-03	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U		

Table 5 (continued)
Detected Volatile Organic Compounds in Groundwater
Former MCAS El Toro, California

Site	Station ID	Base Screen Depth (ft. bgs)	Sample Date	Primary VOCs Detected and Regulatory Standards Concentrations in µg/L								
				TCE	PCE	CCl4	1,1-DCE	1,2-DCE (Total)	Chloro-form	Benzene	Other Compounds Detected	
				5	5	0.5	6	6	100	1		Result
Site 3	04_UGMW63 (cont.)		23-Sep-03	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U		
			25-Mar-04	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U		
			20-Sep-04	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U	Methylene Chloride	5 J
			21-Mar-05	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		
			19-Sep-05	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		
			16-Mar-06	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		
Site 5	05_DBMW41	222	16-Nov-92	1 U	0.8 J	1 U	1 U	1 U	1 U	1 U		
			20-Oct-93	1 U	0.7 J	1 U	1 U	1 U	1 U	1 U		
			5-Dec-95	1 U	0.8 J	1 U	1 U	1 U	1 U	1 U		
			5-Dec-95	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			7-Feb-96	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			13-Nov-96	1 U	0.8 J	1 U	1 U	1 U	1 U	1 U	Methylene Chloride	2
			13-Mar-97	1 U	0.6 J	1 U	1 U	1 U	1 U	1 U		
			8-Jul-97	1 U	0.6 J	1 U	1 U	1 U	1 U	1 U		
			21-Oct-97	1 U	0.5 J	1 U	1 U	1 U	1 U	1 U		
			16-Oct-98	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			3-Feb-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			10-May-99	1 U	0.2 J	1 U	1 U	1 U	1 U	1 U	Dichlorodifluoromethane	0.3 J
			22-Jul-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U	Dichlorodifluoromethane	0.6 J
			19-Jun-00	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
Site 5	05_DBMW41A	185	16-Feb-01	10 U	10 U	10 U	10 U	10 U	10 U	10 U		
			19-Sep-01	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			12-Mar-02	1 U	1 U	0.5 U	1 U	1 U	0.6 J	1 U		
			30-Sep-02	1 U	1 U	0.5 U	1 U	1 U	0.7 J	1 U		
			19-Mar-03	1 U	1 U	0.5 U	1 U	1 U	0.8 J	1 U	Bromodichloromethane	0.4 J
			18-Sep-03	1 U	1 U	0.5 U	1 U	1 U	1	1 U	Bromodichloromethane	0.8 J
			24-Mar-04	1 U	1 U	0.5 U	1 U	1 U	1	1 U	Bromodichloromethane	0.5 J
			30-Sep-04	1 U	1 U	0.5 U	1 U	2 U	3	1 U	Bromodichloromethane	1

Table 5 (continued)
Detected Volatile Organic Compounds in Groundwater
Former MCAS El Toro, California

Site	Station ID	Base Screen Depth (ft. bgs)	Sample Date	Primary VOCs Detected and Regulatory Standards Concentrations in µg/L								
				TCE	PCE	CCl4	1,1-DCE	1,2-DCE (Total)	Chloro-form	Benzene	Other Compounds Detected	
				5	5	0.5	6	6	100	1		Result
Site 5	05_DBMW41A (cont.)		23-Mar-05	1 U	1 U	0.5 U	1 U	2 U	3	1 U	Bromodichloromethane	1
			8-Sep-05	1 U	1 U	0.5 U	1 U	2 U	3	1 U		
			15-Mar-06	1 U	1 U	0.5 U	1 U	2 U	3	1 U	bromodichloromethane	0.5 J
Site 5	05_DGMW67	227	30-Nov-92	1 U	1 U	1 U	1 U	1 U	1 U	0.3 J		
			6-Mar-93	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			6-Dec-95	1 U	0.8 J	1 U	1 U	1 U	1 U	1 U		
			9-Feb-96	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			13-Nov-96	1 U	1 U	1 U	1 U	1 U	1 U	1 U	Methylene Chloride	2
			14-Mar-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			20-Oct-98	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			22-Jan-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			10-May-99	1 U	0.4 J	1 U	1 U	1 U	1 U	1 U	Dichlorodifluoromethane	0.3 J
			22-Jul-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U	Dichlorodifluoromethane	0.8 J
			20-Jun-00	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
Site 5	05_DGMW67A	190	16-Feb-01	10 U	0.3 J	10 U	10 U	10 U	10 U	10 U		
			19-Sep-01	0.3 J	1 U	1 U	1 U	1 U	1 U	1 U		
			12-Mar-02	1 U	0.6 J	0.5 U	1 U	1 U	1 U	1 U		
			30-Sep-02	0.3 J	0.6 J	0.5 U	1 U	1 U	1 U	1 U		
			21-Mar-03	0.6 J	0.5 J	0.5 U	1 U	1 U	1 U	1 U		
			25-Sep-03	0.6 J	0.6 J	0.5 U	1 U	1 U	0.4 J	1 U		
			24-Mar-04	1 U	0.5 J	0.5 U	1 U	1 U	0.4 J	1 U		
			30-Sep-04	1 U	0.6 J	0.5 U	1 U	2 U	0.9 J	1 U		
			31-Mar-05	0.6 J	0.5 J	0.5 U	1 U	2 U	1	1 U		
			20-Sep-05	1 U	1 U	0.5 U	1 U	2 U	0.9 J	1 U		
			17-Mar-06	1 U	1 U	0.5 U	1 U	2 U	0.8 J	1 U		

Table 5 (continued)
Detected Volatile Organic Compounds in Groundwater
Former MCAS El Toro, California

Site	Station ID	Base Screen Depth (ft. bgs)	Sample Date	Primary VOCs Detected and Regulatory Standards Concentrations in µg/L								
				TCE	PCE	CCl4	1,1-DCE	1,2-DCE (Total)	Chloro-form	Benzene	Other Compounds Detected	
				5	5	0.5	6	6	100	1		Result
Site 5	05_DGMW68	210	17-Dec-92	1 U	1 U	1 U	1 U	1 U	1 U	1 U	Methylene Chloride	0.5 J
			29-Jun-93	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			9-Jan-96	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			27-Feb-96	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			15-Nov-96	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			5-Mar-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U	Methylene Chloride	1
			1-Jul-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			17-Oct-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			19-Oct-98	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			2-Feb-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			13-May-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U	Silane	1.5
			22-Jul-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			20-Jun-00	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			18-Sep-03	1 U	1 U	0.5 U	1 U	1 U	0.9 J	1 U	Bromodichloromethane	0.5 J
Site 5	05_DGMW68A	186	20-Sep-01	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			12-Mar-02	1 U	1 U	0.5 U	1 U	1 U	0.4 J	1 U		
			27-Sep-02	1 U	1 U	0.5 U	1 U	1 U	0.7 J	1 U		
			19-Mar-03	1 U	1 U	0.5 U	1 U	1 U	0.6 J	1 U	Toluene	0.3 J
			18-Sep-03	1 U	1 U	0.5 U	1 U	1 U	0.9 J	1 U	Bromodichloromethane	0.5 J
			24-Mar-04	1 U	1 U	0.5 U	1 U	1 U	2	1 U	Bromodichloromethane	0.8 J
			30-Sep-04	1 U	1 U	0.5 U	1 U	2 U	2	1 U	Bromodichloromethane	0.8 J
			18-Mar-05	1 U	1 U	0.5 U	1 U	2 U	2	1 U		
			7-Sep-05	1 U	1 U	0.5 U	1 U	2 U	2	1 U	Bromodichloromethane	0.7 J
			16-Mar-06	1 U	1 U	0.5 U	1 U	2 U	2	1 U	bromodichloromethane	0.6 J
Site 5	05NEW1	203	28-Dec-95	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			13-Nov-96	1 U	1 U	1 U	1 U	1 U	1 U	1 U	Methylene Chloride	1
			13-Mar-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			9-Jul-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			9-Jul-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U		

Table 5 (continued)
Detected Volatile Organic Compounds in Groundwater
Former MCAS El Toro, California

Site	Station ID	Base Screen Depth (ft. bgs)	Sample Date	Primary VOCs Detected and Regulatory Standards Concentrations in µg/L								
				TCE	PCE	CCl4	1,1-DCE	1,2-DCE (Total)	Chloro-form	Benzene	Other Compounds Detected	
				5	5	0.5	6	6	100	1		Result
Site 5	05NEW1 (cont.)		21-Oct-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			19-Oct-98	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			2-Feb-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			14-May-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			23-Jul-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			19-Jun-00	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			19-Sep-01	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			11-Mar-02	1 U	1 U	0.5 UJ	1 U	1 U	1 U	1 U	2-Butanone (MEK)	4 J
			19-Sep-02	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U		
			14-Mar-03	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U		
			17-Sep-03	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U		
			24-Mar-04	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U	Methylene Chloride	0.3 J
			16-Sep-04	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		
			21-Mar-05	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		
			23-Sep-05	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		
			17-Mar-06	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U		
Site 5	05_UGMW27	238	12-Mar-92	0.6 J	0.9 J	1 U	1 U	1 U	1 U	1 U		
			6-Mar-93	0.6 J	0.8 J	1 U	1 U	1 U	1 U	1 U		
			17-Aug-95	2 J	0.6 J	1 U	1 U	1 U	1 U	1 J	Chlorobenzene	1 J
			17-Aug-95								Toluene	2 J
			8-Dec-95	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			29-Jan-96	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			13-Nov-96	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			13-Mar-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U	Methylene Chloride	1
			9-Jul-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			9-Jul-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			21-Oct-97	1 U	0.5 J	1 U	1 U	1 U	1 U	1 U		
			21-Oct-97	1 U	0.6 J	1 U	1 U	1 U	1 U	1 U	Methylene Chloride	0.3 J
			20-Oct-98	1 U	1 U	1 U	1 U	1 U	1 U	1 U	Dichlorodifluoromethane	0.9 J
			22-Jan-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U	Dichlorodifluoromethane	0.9 J

Detected Volatile Organic Compounds in Groundwater
Former MCAS El Toro, California

Site	Station ID	Base Screen Depth (ft. bgs)	Sample Date	Primary VOCs Detected and Regulatory Standards Concentrations in µg/L								
				TCE	PCE	CCl4	1,1-DCE	1,2-DCE (Total)	Chloro-form	Benzene	Other Compounds Detected	
				5	5	0.5	6	6	100	1		Result
Site 5	05_UGMW27 (cont.)		10-May-99	1 U	0.3 U	1 U	1 U	1 U	1 U	1 U	Dichlorodifluoromethane	0.8 J
			21-Jul-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U	Dichlorodifluoromethane	2
Site 5	05_UGMW27A	190	27-Feb-01	10 U	0.3 J	10 U	10 U	10 U	10 U	10 U	Carbon disulfide	0.5 J
			27-Feb-01								1,2-Dichloropropane	5 J
			24-Sep-01	1 U	1 U	1 U	1 U	1 U	1	1 U	Bromodichloromethane	0.4 J
			11-Mar-02	1 U	1 U	1 U	1 U	1 U	0.8 J	1 U	Bromodichloromethane	0.4 J
			11-Mar-02	1 U	1 U	0.5 U	1 U	1 U	0.7 J	1 U	Bromodichloromethane	0.4 J
			26-Sep-02	1 U	1 U	0.5 U	1 U	1 U	0.9 J	1 U	Bromodichloromethane	0.5 J
			20-Mar-03	1 U	1 U	0.5 U	1 U	1 U	0.6 J	1 U	Bromodichloromethane	0.4 J
Site 17	17_DGMW82	255	6-Mar-93	1 U	1 U	1 U	1 U	1 U	5	1 U	Methylene Chloride	0.9 J
			2-Aug-93	1 U	1 U	1 U	1 U	1 U	7	1 U	Methylene Chloride	1 J
			6-Dec-95	1 U	1 U	1 U	1 U	1 U	0.9 J	1 U		
			9-Feb-96	1 U	1 U	1 U	1 U	1 U	0.8 J	1 U		
			20-Nov-96	1 U	1 U	1 U	1 U	1 U	0.8 J	1 U		
			1-Apr-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			9-Oct-98	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			29-Jan-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			30-Apr-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			16-Jul-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			22-Jun-00	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			20-Sep-01	1 U	1 U	1 U	1 U	1 U	1 U	1 U	Freon-113	0.6 J
			14-Mar-02	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U	Freon-113	0.8 J
			19-Sep-02	0.6 J	1 U	0.5 U	1 U	1 U	1 U	1 U	Freon-113	1
			19-Mar-03	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U	Freon-113	0.5 J
			29-Sep-03	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U	Freon-113	2
			19-Mar-04	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U	Freon-113	1
			16-Mar-05	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U		
			22-Sep-05	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U	Freon-113	1
			22-Mar-06	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U	Freon-113	2

Table 5 (continued)
Detected Volatile Organic Compounds in Groundwater
Former MCAS El Toro, California

Site	Station ID	Base Screen Depth (ft. bgs)	Sample Date	Primary VOCs Detected and Regulatory Standards Concentrations in µg/L								
				TCE	PCE	CCl4	1,1-DCE	1,2-DCE (Total)	Chloro-form	Benzene	Other Compounds Detected	
				5	5	0.5	6	6	100	1		Result
Site 17	17_NEW1	226	12-Jan-96	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			20-Nov-96	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			24-Mar-97	0.6 J	1 U	1 U	1 U	1 U	1 U	1 U		
			30-Jun-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U	Ethylbenzene	1
			23-Oct-97	1	1 U	1 U	1 U	1 U	1 U	1 U		
			9-Oct-98	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			22-Jan-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			30-Apr-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			16-Jul-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			22-Jun-00	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			20-Sep-01	1 U	1 U	1 U	1 U	1 U	1 U	1 U	Freon-113	0.6 J
			14-Mar-02	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U	Freon-113	0.7 J
			19-Sep-02	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U	Freon-113	1
			19-Mar-03	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U	Freon-113	2
			29-Sep-03	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U	Freon-113	1 J
			19-Mar-04	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U	Freon-113	0.8 J
			21-Sep-04	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U	Freon-113	0.7 J
			16-Mar-05	1 U	1 U	0.5 U	1 U	1 U	1 U	1 U	Freon-113	1
			16-Mar-05								Acetone	3 J
			22-Sep-05	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U	Freon-113	1
			20-Mar-06	1 U	1 U	0.5 U	1 U	2 U	1 U	1 U	Freon-12	2
Site 17	17_NEW2	123	3-Jan-96	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			20-Nov-96	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			24-Mar-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			30-Jun-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			23-Oct-97	1 U	1 U	1 U	1 U	1 U	1 U	1 U	Methylene Chloride	0.4 J
			9-Oct-98	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			29-Jan-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			30-Apr-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		
			16-Jul-99	1 U	1 U	1 U	1 U	1 U	1 U	1 U		

Table 5 (continued)
Detected Volatile Organic Compounds in Groundwater
Former MCAS El Toro, California

Site	Station ID	Base Screen Depth (ft. bgs)	Sample Date	Primary VOCs Detected and Regulatory Standards Concentrations in µg/L								
				TCE	PCE	CCl4	1,1-DCE	1,2-DCE (Total)	Chloro-form	Benzene	Other Compounds Detected	
				5	5	0.5	6	6	100	1		Result

Notes:

Data in this table have been compiled from technical documents provided by other Navy contractors and from measurements taken by CDM during Rounds 12 through 23.

1) **Bold** results meet or exceed regulatory standard.

2) **Bold** Well Station ID indicates the well was sampled during Round 23.

3) Table lists results for primary volatile organic compounds (VOCs) detected in groundwater. All concentrations in micrograms per liter (ug/L)

4) Data qualifiers: U = not detected above the listed detection limit; J = estimated concentration

5) VOC abbreviations and regulatory standards (listed at top of results columns):

Trichloroethene (TCE), federal maximum contaminant level (MCL) 5.0 ug/L

Tetrachloroethene (PCE), federal MCL 5.0 ug/L, Carbon Tetrachloride (CCl4) state MCL 0.5 ug/L

1,2-Dichloroethene (1,2-DCE) total, results include cis-1,2-DCE (state MCL 6.0 ug/L) and trans-1,2-DCE

Chloroform, state MCL 100 mg/L, Benzene, state MCL 1.0 ug/L

ft. bgs = feet below ground surface

Table 6
General Chemistry Analyses
Former MCAS El Toro, California

Station ID	Sample Date	TDS	Chloride	Sulfate	Nitrate	Alkalinity (as $CaCO_3$)
GENERAL CHEMISTRY PARAMETERS AND REGULATORY STANDARDS All Results in Milligrams per Liter (mg/L)						
		500	250.0	250.0	10.0	NE
02NEW16	24-Sep-01	820	59.0	179.0	10.5	278
	23-Sep-02	773	62.7	215.0	4.0	308
	21-Sep-05	887	73.4	283.0	9.3	314
	22-Mar-06	845	79.4	277.0	7.9	307
03_DGMW64A	24-Sep-01	926	122.0	186.0	5.8	350
	25-Sep-02	977	129.0	194.0	6.5	352
	22-Sep-03	942	135.0	187.0	7.0	351
	30-Sep-04	887	141.0	168.0	6.9	333
	7-Sep-05	909	132.0	147.0	5.4	301
	15-Mar-06	851	152.0	157.0	6.0	299
03_DGMW65XA	19-Sep-01	780	81.1	99.2	7.2	421
	1-Oct-02	901	95.2	99.4	10.3	415
	22-Sep-03	1,040	72.3	114.0	7.3	437
	29-Sep-04	821	111.0	84.9	9.6	397
	7-Sep-05	764	73.4	99.4	6.1	439
	15-Mar-06	823	104.0	86.5	5.9	477
05NEW1	28-Dec-95	789	99.1	200.0	11.1	248
	13-Nov-96	878	99.0	219.0	12.0	252
	13-Mar-97	850	88.7	196.0	11.1	251
	9-Jul-97	911	112.0	206.0	9.9	256
	9-Jul-97	918	108.0	209.0	9.8	256
	21-Oct-97	928	103.0	212.0	8.2	256
	19-Jun-00	906	115.0	250.0	6.9	260
	19-Sep-01	883	93.3	212.0	13.0	276
	19-Sep-02	924	97.7	226.0	7.7	264
	17-Sep-03	898	92.4	225.0	7.5	272
	23-Sep-05	886	117.0	242.0	8.2	274
	17-Mar-06	860	95.1	243.0	7.3	256
17_DGMW82	8-Feb-93	817	101.0	315.0	0.9	155
	3-Jun-93	912	106.0	331.0	1.1	192
	6-Dec-95	785	NA	187.0	2.0	272
	9-Feb-96	767	96.0	182.0	NA	272
	20-Nov-96	760	113.0	172.0	1.4	272
	1-Apr-97	736	85.0	137.0	2.0	258
	19-Sep-02	760	127.0	121.0	1.3	299
	29-Sep-03	949	119.0	121.0	2.2	421
	21-Sep-04	726	117.0	119.0	2.6	300
	22-Sep-05	635	122.0	131.0	1.9	292
	22-Mar-06	676	118.0	124.0	2.1	288
17NEW1	3-Jan-96	526	114.0	46.1	1.1	244
	20-Nov-96	450	90.4	47.4	4.8	192
	24-Mar-97	492	80.2	35.7	4.8	200
	8-Jul-97	954	248.0	100.0	11.7	194
	8-Jul-97	869	254.0	102.0	12.0	196
	23-Oct-97	961	240.0	103.0	10.2	191
	23-Oct-97	1,070	242.0	103.0	10.0	189
	14-Jun-00	949	269.0	110.0	6.8	186
	29-Sep-03	643	83.8	77.7	11.1	242
	21-Sep-04	640	99.5	85.3	12.8	214
	22-Sep-05	855	130.0	119.0	17.4	287
	20-Mar-06	860	131.0	129.0	17.3	315

Notes:

1) Regulatory Standards for Parameters listed:
   Nitrate/Nitrite-N - 10 mg/L Federal maximum contaminant level (MCL), TDS (Total Dissolved Solids) - 500 mg/L Federal Secondary MCL,
   Chloride - 250 mg/L Federal Secondary MCL, Sulfate - 250 mg/L Federal Secondary MCL
2) 'Bold results = Result exceeds regulatory standard
3) 'Bold Station ID = Well Sampled during Round 23

Abbreviations: MCAS = Marine Corps Air Station, U = Concentration is below instrument detection limit (not detected), NE = None Established.

Table 7
Results of Radionuclides Analysis
Former MCAS El Toro

Sample ID	Date	Total Gross Alpha			Total Gross Beta		
		Activity (pCi/L)	Error	MDA (pCi/L)	Activity (pCi/L)	Error	MDA (pCi/L)
		MCL = 15			MCL = 50		
02_DGMW59	15-Dec-92	**16.3**	-	-	14.1	-	-
	23-Jun-93	**21.6**	-	-	15.8	-	-
	16-Aug-95	4.8	-	-	7.90J	-	-
	7-Feb-96	9.01	-	-	-0.97	-	-
	7-Feb-96	10.16	-	-	0.26	-	-
	4-Nov-96	12.51	-	-	2.93	-	-
	26-Mar-97	5.7	-	-	2.06	-	-
	3-Jul-97	**16.98**	-	-	8.36	-	-
	27-Oct-97	11.47	-	-	5.34	-	-
	7-Oct-98	13J	3.1	4	4.5J	2	3.2
	24-Sep-01	10.5	5.9	7.9	8.2	5.7	9.1
	23-Sep-02	**22.9J**	9.5	12	10.6	4.9	7.4
	29-Sep-03	12.1	5.5	6	8.8		6
	21-Sep-04	9.01	2.47	3.33	7.83	1.88	3.03
	21-Sep-05	3.13	2.12	3.2	6.56	-	4.27
	21-Mar-06	7.91	2.0	3.0	4.22	2.28	4.0
02_DGMW60	18-Nov-92	**20.9**	-	-	10.8	-	-
	23-Jun-93	**24**	-	-	30.2	-	-
	15-Aug-95	**20.6**	-	-	13.00J	-	-
	28-Nov-95	**26**	-	-	14.8	-	-
	7-Feb-96	**22.93**	-	-	-1.69	-	-
	7-Feb-96	**16.71**	-	-	0.33	-	-
	4-Nov-96	**32.16**	-	-	13.58	-	-
	26-Mar-97	**36.16**	-	-	17.65	-	-
	1-Jul-97	**36.82**	-	-	19.05	-	-
	28-Oct-97	**30.41**	-	-	14.69	-	-
	28-Oct-97	**31.27**	-	-	5.43	-	-
	12-Oct-98	**42.6J**	5.8	4.4	29.1J	3.8	3.4
	25-Jan-99	**46.8J**	0.8	2.7	29.5	0.6	2.9
	3-May-99	**60.5J**	0.2	2.6	30.5J	0.6	2.6
	22-Jul-99	**53.5J**	0.7	3.6	27.1J	0.5	3.1
	27-Apr-99	**32.1J**	-	1.8	15.2J	-	1.9
	19-Jul-99	**26.7J**	-	3.4	14.4J	0.2	2.5
	21-Jun-00	**67 J**	16	-	23 J	11	-
	24-Sep-01	**15.5**	5.9	5.8	19.8	6.5	9.3
	23-Sep-02	**60J**	14	11	27.2	6.4	8.1
02_DGMW61	14-Dec-92	6.5	-	-	8.9	-	-
	22-Jan-93	9.2	-	-	10.5	-	-
	16-Aug-95	10.20J	-	-	6.30J	-	-
	29-Nov-95	14.3	-	-	9.4	-	-
	7-Feb-96	**23.91**	-	-	6.35	-	-
	4-Nov-96	**18.24**	-	-	5.41	-	-
	26-Mar-97	**17.91**	-	-	9.35	-	-
	2-Jul-97	**18.46**	-	-	6.76	-	-
	28-Oct-97	**19.06**	-	-	5.43	-	-
	8-Oct-98	**27.3J**	3.9	3.3	13.9J	2.2	2.6
	25-Jan-99	**24.3J**	0.3	2	15.5J	0.3	2.5
	27-Apr-99	**32.1J**	-	1.8	15.2J	-	1.9
	19-Jul-99	**26.7J**	-	3.4	14.4J	0.2	2.5

Table 7 (continued)
Results of Radionuclides Analysis
Former MCAS El Toro

Sample ID	Date	Total Gross Alpha Activity (pCi/L)	Total Gross Alpha Error	Total Gross Alpha MDA (pCi/L)	Total Gross Beta Activity (pCi/L)	Total Gross Beta Error	Total Gross Beta MDA (pCi/L)
		MCL = 15			MCL = 50		
	21-Jun-00	**32 J**	11	-	12 J	8	-
	24-Sep-01	**31**	7.3	4.3	11.1	5	7.7
	23-Sep-02	**35.6J**	8.8	6.3	14.1	4.3	5.9
02NEW2	21-Dec-95	9.90U	-	-	6.20U	-	-
	26-Nov-96	**28.29**	-	-	3.4	-	-
	26-Mar-97	13.44	-	-	11.7	-	-
	3-Jul-97	**15.34**	-	-	10.35	-	-
	27-Oct-97	13.7	-	-	4.31	-	-
	8-Oct-98	14J	0.5	3.2	9.1J	2	2.7
	27-Jan-99	**15.4J**	0.2	2.4	8.5J	0.8	2.5
	4-May-99	**20.1J**	0.1	2.4	8.3J	0.7	2.3
	20-Jul-99	**18.1J**	0.9	2.4	9.7J	0.6	2
	20-Jun-00	7.4 UJ	7.1	-	6.4 UJ	6.8	-
	24-Sep-01	**18**	5.3	4.7	9.9	4.1	6.3
	23-Sep-02	**17.7J**	6.4	6.3	13.5	4.6	6.6
	29-Sep-03	13.5 J	4.8	4.6	9.6 J	3.2	4.4
	21-Sep-04	14.5	2.66	2.52	16.1	2.2	2.94
	21-Sep-05	14.8	4.06	3.88	9.25	-	5.29
	22-Mar-06	31.9	3.29	3.0	11.5	2.55	4.0
02NEW7	1-Oct-04	**15.3**	2.3	1.94	3.86	0.958	1.34
	26-Sep-05	14.2	-	3.13	7.87	-	3.45
	16-Mar-06	**28.2J**	2.8	3.0	10.3	1.92	4.0
02NEW8A	27-Dec-95	**16.3**	-	-	6.3	-	-
	7-Nov-96	**24.2**	-	-	5.77	-	-
	25-Mar-97	**27.29**	-	-	5.71	-	-
	8-Jul-97	**17.57**	-	-	11.62	-	-
	27-Oct-97	**15.34**	-	-	13.22	-	-
	14-Oct-98	**22.1J**	3.2	2.7	14.8J	2	2.1
	14-Oct-98	**24.6J**	3.3	2.2	15.3J	2.1	2.2
	27-Jan-99	**25.8J**	0.2	1.7	14.4J	0.9	1.8
	27-Apr-99	**26.1J**	0.5	2.3	17.5J	0.2	1.8
	20-Jul-99	**26.3J**	0.8	3.1	4.8J	0.2	2.5
	21-Jun-00	**36 J**	9.9	-	8.1 UJ	7	-
	24-Sep-01	**24.7**	5.9	4.3	11.5	3.7	5.3
	23-Sep-02	**45**	10	8	11.4	4.7	7
	23-Sep-02	**47J**	11	7	17.9	5.1	6.9
	23-Sep-03	**25.9**	6.5	5.3	16.6	3.4	4
	20-Sep-04	**27**	3.2	2.33	18.2	2.14	2.72
	20-Sep-05	**26.1**	6.67	4.46	12.3	-	5.93
	16-Mar-06	**25.4 J**	5.93	3.0	10.1	3.04	4.0
02NEW11	21-Dec-95	6.60U	-	-	5.30U	-	-
	7-Nov-96	6.92	-	-	1.39	-	-
	25-Mar-97	7.78	-	-	2.84	-	-
	8-Jul-97	6.14	-	-	5.87	-	-
	23-Oct-97	6.55	-	-	6.53	-	-
	14-Oct-98	7.1J	2.2	3.2	7.2J	1.8	2.7
	21-Jan-99	7.7J	0.6	1.7	6.4J	0.5	2.1
	26-Apr-99	6.9J	0.9	2.4	5.6J	0.4	2

Table 7 (continued)
Results of Radionuclides Analysis
Former MCAS El Toro

Sample ID	Date	Total Gross Alpha			Total Gross Beta		
		Activity (pCi/L)	Error	MDA (pCi/L)	Activity (pCi/L)	Error	MDA (pCi/L)
		MCL = 15			MCL = 50		
02NEW11 (cont.)	15-Jul-99	9.6J	0.9	2.2	7.2J	0.3	1.6
	22-Jun-00	17 J	9.1	-	1.3 UJ	7.1	-
	22-Jun-00	9.7 UJ	7.7	-	8.8 UJ	6.5	-
	24-Sep-01	10.9	3.9	3.8	9.6	3.2	4.6
	23-Sep-02	**16.2J**	6	6.4	10.4	4	5.8
	23-Sep-02	**15.9J**	5.7	5.8	11.3	3.5	4.7
	29-Sep-03	6.1 J	3.4	4.5	6.5	2.3	3.4
	20-Sep-04	6.73	2.09	3	6.76	1.69	2.75
	20-Sep-05	**15**	4.44	4.91	7.57	-	5.97
	21-Mar-06	**5.31 J**	3.12	3.0	7.31	2.56	4.0
02NEW15	12-Oct-98	**20J**	3.8	4.3	9.5J	2.4	3.6
	1-Feb-99	**20.4J**	0.5	3.4	10.5J	0.3	3.3
	26-Apr-99	**14.1J**	0.1	3.7	7.6J	0.1	3.2
	19-Jul-99	**23.8J**	0.1	3.9	7.7J	0.1	3.1
	22-Jun-00	13 J	10	-	-6.6 UJ	10	-
	24-Sep-01	9.7 J	5	6.4	6.7 UJ	4.6	7.4
	24-Sep-01	**15.7 J**	6	6.7	8.4 J	4.9	7.7
	23-Sep-02	**15.6J**	7.2	9	8.5	4.5	7
	22-Sep-03	**22.6**	7.8	8	7.3	3.9	6
	23-Sep-04	14.6	2.82	3.05	10.2	1.88	2.88
	21-Sep-05	7.49	4.39	6.14	9.2	-	7.66
	22-Mar-06	16	2.31	3.0	6.78	1.84	4.0
02NEW16	8-Oct-98	**17.2J**	3	3.3	10.3J	2	2.7
	24-Sep-01	**15.8**	5	4.9	10.1	3.5	5.1
	23-Sep-02	**30.9J**	7.9	5.7	15.3	4.2	5.4
	21-Sep-05	**40.3**	10	7.02	23.2	-	9.12
	22-Mar-06	**32.2**	3.56	3.0	12.6	2.6	4.0
03_DGMW64	15-Jan-93	14.3	-	-	13.1	-	-
	2-Jun-93	13.3	-	-	16.6	-	-
	26-Feb-96	11.14	-	-	2.97	-	-
	12-Nov-96	13.33	-	-	7.29	-	-
	12-Nov-96	13.33	-	-	7.27	-	-
	4-Mar-97	**16.6**	-	-	7.08	-	-
	30-Jun-97	**19.99**	-	-	7.11	-	-
	16-Oct-97	**20.18**	-	-	10.85	-	-
	13-Oct-98	14.1J	3.3	4.2	13.8J	2.6	3.3
03_DGMW64A	19-Sep-01	**28.2**	8.4	7.2	10.7	5.1	7.8
	25-Sep-02	**40J**	10	8	18.1	5.3	7.1
	22-Sep-03	**31.8**	7.2	4.3	17.4	3.6	4.1
	30-Sep-04	**22.6**	3.25	2.93	8.94	1.64	2.25
	7-Sep-05	**20.6**	-	11.3	18.5	-	17.3
	15-Mar-06	**21.5J**	2.87	3.0	14.2	2.17	4.0
03_DGMW65X	18-Jan-93	8.6	-	-	8.8	-	-
	7-Jul-97	14.5	-	-	13.2	-	-
	26-Feb-96	**15.56**	-	-	9.79	-	-
	11-Nov-96	14	-	-	2.19	-	-
	4-Mar-97	**16.38**	-	-	6.93	-	-
	30-Jun-97	14.13	-	-	26.66	-	-

Table 7 (continued)
Results of Radionuclides Analysis
Former MCAS El Toro

Sample ID	Date	Total Gross Alpha			Total Gross Beta		
		Activity (pCi/L)	Error	MDA (pCi/L)	Activity (pCi/L)	Error	MDA (pCi/L)
		MCL = 15			MCL = 50		
03_DGMW65X (cont.)	15-Oct-97	**15.26**	-	-	13.88	-	-
	13-Oct-98	13J	2.8	3.3	11.8J	2.4	3.2
	29-Jan-99	**16.1J**	0.8	2.7	10.9J	-	2.5
	6-May-99	**20.5J**	0.4	3.1	10.9J	-	2.6
	26-Jul-99	**19.2J**	0.7	4.1	11.7J	0.3	3.1
	19-Jun-00	**19 J**	11	-	8.1 UJ	10	-
	19-Jun-00	**18 J**	10	-	7.2 UJ	11	-
03_DGMW65XA	19-Sep-01	**26.5**	9	10	7.6	4	6.2
	1-Oct-02	**24.8**	7.2	5.9	11	4.1	5.9
	22-Sep-03	**25.7**	7	5.6	12.6	3.4	4.5
	29-Sep-04	**22.7**	3.14	3.05	4.8	1.28	1.8
	7-Sep-05	**15.1**	-	13.3	14.8	-	14.6
	15-Mar-06	**31.2J**	9.29	3.0	15.5	5.71	4.0
03_UGMW26	1-Oct-92	**14.2**	-	-	10.9	-	-
	23-Jan-93	14.5	-	-	10.7	-	-
	7-Feb-96	3.77	-	-	15.8	-	-
	14-Nov-96	13.3	-	-	1.23	-	-
	14-Nov-96	14.37	-	-	2.22	-	-
	6-Mar-97	14.52	-	-	0.39	-	-
	1-Jul-97	9.34	-	-	4.57	-	-
	17-Oct-97	**22.11**	-	-	5.77	-	-
	13-Oct-98	12.6J	2.7	3.3	9.8J	2	2.7
	3-Feb-99	14.2J	0.4	2.3	9J	0.7	2.3
	5-May-99	13.1J	0.2	1.9	9.6J	0.5	1.7
	22-Jul-99	**15.5J**	0.7	2.5	7.2J	0.7	2.5
	19-Jun-00	**18 J**	9.7	-	4.7 UJ	8.1	-
	20-Sep-01	**15.5**	6.7	7.8	9.9	4.8	7.4
03_UGMW26A	20-Sep-01	**31.9**	9	7.4	15.4	5.1	7.3
	2-Oct-02	**33.3**	9.1	7.3	13.6	4.8	6.9
04_DBMW40	26-Feb-96	**15.23**	-	-	10.21	-	-
	12-Nov-96	**25.98**	-	-	6.55	-	-
	5-Mar-97	10.42	-	-	8.16	-	-
	30-Jun-97	**28.18**	-	-	9.72	-	-
	16-Oct-97	**19.43**	-	-	15.06	-	-
	15-Oct-98	**21.6J**	3.5	3.3	14.5J	2.6	3.3
	4-Feb-99	**17.8J**	-	2.6	12.7J	0.2	2.7
	7-May-99	**17.8J**	0.2	3	10J	-	2.8
	26-Jul-99	**23.6J**	0.7	3.3	10.4J	0.2	3.1
	19-Jun-00	**34 J**	13	-	7.6 UJ	11	-
	19-Sep-01	9.7	5.6	7.5	9	3.9	5.9
	18-Sep-02	**26.6**	8.2	7.0	15.8	5.1	7.1
	23-Sep-03	**26.9**	6.9	4.7	13.6	3.6	4.7
	20-Sep-04	13.5	2.25	1.14	9.23	1.86	2.91
	20-Sep-05	11.8	3.62	3.68	12.8	-	5.82
	17-Mar-06	**16.7J**	2.53	3.0	12.1	2.23	4.0
04_UGMW63	24-Nov-92	NA	NA	NA	11.3	-	-
	30-Jan-96	14.41	-	-	4.44	-	-

Table 7 (continued)
Results of Radionuclides Analysis
Former MCAS El Toro

Sample ID	Date	Total Gross Alpha Activity (pCi/L)	Total Gross Alpha Error	Total Gross Alpha MDA (pCi/L)	Total Gross Beta Activity (pCi/L)	Total Gross Beta Error	Total Gross Beta MDA (pCi/L)
		MCL = 15			MCL = 50		
04_UGMW63 (cont.)	14-Nov-96	**22.86**	-	-	3.06	-	-
	14-Nov-96	**21.89**	-	-	2.67	-	-
	15-Oct-98	13.4J	2.5	2.8	10.2J	1.9	2.5
	4-Feb-99	13.6J	0.3	2	10.2J	-	2.5
	5-May-99	**18.2J**	0.8	1.9	12.8J	0.9	2.2
	26-Jul-99	**19.3J**	0.3	3.3	13.3J	0.2	2.7
	19-Jun-00	**19 UJ**	12	-	7.1 UJ	8.2	-
	19-Sep-01	**27**	10	11	17.3	6.8	10
	18-Sep-02	**28.3**	9.7	11	11.8	4.7	6.8
	23-Sep-03	**17.4**	7.6	9.1	14.6	5	7
	20-Sep-04	11.1	2.34	2.74	9.93	1.73	2.61
	19-Sep-05	14.7	6.27	6.38	11.6	-	9.17
	19-Sep-05	12.6	3.7	3.61	10.6	-	4.78
	16-Mar-06	**17.1J**	6.28	3.0	14.5	5.27	4.0
04_DGMW66	26-Feb-96	2.78	-	-	9.33	-	-
	12-Nov-96	7.45	-	-	1.36	-	-
	4-Mar-97	7.52	-	-	2.73	-	-
	1-Jul-97	8.75	-	-	6.88	-	-
	15-Oct-97	8.71	-	-	4.87	-	-
	16-Oct-98	5.9J	1.6	2	4.3J	1.7	2.7
	19-Sep-01	8.4 UJ	5.9	8.5	8.6 J	4.6	7.2
	19-Sep-01	10.4 J	6.6	9.2	27.7 J	6.7	8.7
04_DGMW66A	19-Sep-01	**72**	19	15	38	11	14
	30-Sep-02	**45**	15	14	34.7	9.5	12
	25-Sep-03	**92.4**	9.9	8.7	19.2 J	5.4	7.2
	29-Sep-04	**30**	4.14	3.82	7.01	1.89	2.77
	7-Sep-05	**18.1**	-	5.51	18.6	-	6.26
	16-Mar-06	**31.7J**	3.13	3.0	16.1	2.13	4.0
05_DBMW41	16-Nov-92	9	-	-	5.9	-	-
	16-Nov-92	9.4	-	-	6.3	-	-
	5-Dec-95	**27**	-	-	18.6	-	-
	7-Feb-96	**26.37**	-	-	9.3	-	-
	13-Nov-96	**29.04**	-	-	5.68	-	-
	13-Mar-97	**21**	-	-	4	-	-
	8-Jul-97	**23.56**	-	-	15.82	-	-
	21-Oct-97	**23.45**	-	-	5.74	-	-
	16-Oct-98	**26.5J**	4	3.6	14.4J	2.6	3.4
	3-Feb-99	**24.2J**	0.4	2.2	12.6J	0.9	2.6
	10-May-99	**23.2J**	0.4	2.3	10.4J	0.8	2.3
	22-Jul-99	**23.8J**	0.4	2.6	11.7J	0.1	2.8
	19-Jun-00	11 UJ	11	-	9.6 UJ	8.2	-
05_DBMW41A	19-Sep-01	**26.7**	8.6	8.4	10.8	5.1	7.9
	30-Sep-02	**28.6**	7.9	6.1	16	4.7	6.2
	18-Sep-03	**15.1**	6	6.8	12.6	3.8	5.1
	30-Sep-04	**15.6**	2.81	2.96	6.45	1.54	2.22
	8-Sep-05	14.9	-	2.73	15.3	-	5.21
	15-Mar-06	**15.6J**	4.73	3.0	8.47	2.87	4.0

Table 7 (continued)
Results of Radionuclides Analysis
Former MCAS El Toro

Sample ID	Date	Total Gross Alpha			Total Gross Beta		
		Activity (pCi/L)	Error	MDA (pCi/L)	Activity (pCi/L)	Error	MDA (pCi/L)
		MCL = 15			MCL = 50		
05_DGMW67	30-Nov-92	**15**	-	-	7.7	-	-
	30-Nov-92	**24.9**	-	-	53	-	-
	3-Jun-93	**16.7**	-	-	19	-	-
	6-Dec-95	**23.2**	-	-	9.6	-	-
	7-Feb-96	**22.11**	-	-	6.07	-	-
	13-Nov-96	**19.58**	-	-	1.35	-	-
	14-Mar-97	**24.6**	-	-	4.14	-	-
	20-Oct-98	**15.1J**	3.1	3.7	10.9J	2.4	3.4
	22-Jan-99	**16.2J**	0.7	2.3	10.5J	-	2.7
	10-May-99	**16.6J**	0.8	2.5	7.2J	0.7	2.4
	21-Jul-99	**15.7J**	0.2	3.7	9.9J	0.9	2.6
	20-Jun-00	14 J	9.2	-	2.4 UJ	8.3	-
05_DGMW67A	19-Sep-01	14	6.1	6.7	8.5	5	7.9
	30-Sep-02	**18**	7.1	7.7	11.4	4.5	6.5
	25-Sep-03	8	4.3	5.5	8.6	3.1	4.5
	30-Sep-04	7.77	2.47	3.58	3.08	0.98	1.33
	20-Sep-05	9.78	5.84	9.71	10.5	-	10.2
	17-Mar-06	10.4J	1.99	3.0	7.52	2.04	4.0
05_DGMW68	17-Dec-92	7	-	-	13.6	-	-
	25-Jun-93	10.8	-	-	12.4	-	-
	9-Jan-96	11.6	-	-	10.9	-	-
	15-Nov-96	**20.4**	-	-	3.75	-	-
	5-Mar-97	**19.21**	-	-	8.28	-	-
	1-Jul-97	**19.69**	-	-	7.62	-	-
	17-Oct-97	13.63	-	-	0.36	-	-
	19-Oct-98	3.7J	2	3.2	5.9J	1.7	2.6
	2-Feb-99	7.9J	0.7	1.8	4.8J	0.6	2.4
	13-May-99	6.9J	0.9	2.4	5.1J	0.5	2.3
	22-Jul-99	5.8J	0.8	2.4	6.3J	0.5	2.1
	20-Jun-00	14 J	8	-	8.6 UJ	6.9	-
05_DGMW68A	20-Sep-01	**15.9**	6.7	7.8	11.1	4.3	6.4
	27-Sep-02	**29.6J**	8.2	6.6	10	4.2	6.2
	18-Sep-03	**18.8**	6.2	5.9	11.7	3.5	4.8
	30-Sep-04	**17.9**	2.87	2.99	4.88	1.28	1.8
	8-Sep-05	**17.7**	-	2.87	10.7	-	4.54
	16-Mar-06	**26.4J**	6.63	3.0	9.89	3.22	4.0
05_UGMW27	3-Jun-93	9.3	-	-	14.1	-	-
	17-Aug-95	13.3	-	-	5.1	-	-
	8-Dec-95	12.4	-	-	8.2	-	-
	29-Jan-96	**15.89**	-	-	2.55	-	-
	13-Nov-96	14.67	-	-	2.21	-	-
	13-Mar-97	**18.17**	-	-	7.91	-	-
	9-Jul-97	14.41	-	-	6.16	-	-
	9-Jul-97	**17.42**	-	-	7.36	-	-
	21-Oct-97	**18.39**	-	-	2.74	-	-
	21-Oct-97	**18.39**	-	-	3.52	-	-
	20-Oct-98	11.7J	2.7	3.3	10.7J	2.3	3.3

Table 7 (continued)
Results of Radionuclides Analysis
Former MCAS El Toro

Sample ID	Date	Total Gross Alpha			Total Gross Beta		
		Activity (pCi/L)	Error	MDA (pCi/L)	Activity (pCi/L)	Error	MDA (pCi/L)
		MCL = 15			MCL = 50		
05_UGMW27A	24-Sep-01	12.3	5.3	6.4	9.8	4.4	6.8
	24-Sep-01	11.3	4.8	5.5	10	4.6	7.1
	26-Sep-02	**26.1J**	8.2	7.1	8.4J	4.6	7.1
	26-Sep-02	**21.8J**	7.6	7.3	7J	4.7	7.4
05NEW1	28-Dec-95	3.4	-	-	3.8	-	-
	13-Nov-96	10.05	-	-	3.5	-	-
	13-Mar-97	8.34	-	-	9.02	-	-
	9-Jul-97	4.88	-	-	7.68	-	-
	9-Jul-97	8.75	-	-	14.45	-	-
	21-Oct-97	6.92	-	-	3.82	-	-
	19-Oct-98	11.7J	2.3	2.5	9.7J	1.9	2.6
	2-Feb-99	11.1J	0.3	2.4	11.3J	0.1	2.8
	14-May-99	14.7J	2.3	2.3	9.5J	0.8	2.4
	23-Jul-99	12.2J	0.9	3.5	9.1J	0.1	3
	19-Jun-00	**18 J**	10	-	7.7 UJ	9.6	-
	19-Sep-01	12.3	4.7	4.6	12.4	3.5	4.7
	19-Sep-02	10.3	5.1	6.1	10.0	3.7	5.4
	17-Sep-03	**15.8**	5.6	5.2	10.0	3.7	5.4
	16-Sep-04	8.55	2.38	3.27	7.89	1.85	3.02
	23-Sep-05	10.6	2.48	2.43	7.12	2.37	4.04
	23-Sep-05	10.9	3.13	2.51	14.5	-	6.39
	17-Mar-06	12.5J	2.1	3.0	8.19	2	4

Notes:
1) Wells in Table 7 consist of wells that have been sampled during Rounds 12, 14, 16, 18, 20, 22, and 23. Historical results are also presented for these wells.
2) Dash indicates this value was not available.
3) Abbreviations:
J =estimated value, MCAS = Marine Corps Air Station, MDA = minimum detectable activity, NA = not analyzed, pCi/L = picoCuries per liter, U = not detected, UJ = analyte not detected, detection limit estimated
MCL = Maximum contaminant level
4) **Bold result** = Result exceeds regulatory standard; Bold Sample ID = Well sampled during Round 23.
5) Final Technical Memorandum, *Phase II Evaluation of Radionuclides in Groundwater at Former Landfill Sites and EOD Range, Marine Corps Air Station El Toro*, prepared by Earth Tech, Inc., dated December 2001 concluded that radionuclides detected in groundwater are naturally occurring.

Table 8
Metals Analyses
Former MCAS El Toro, California

TARGET ANALYTE LIST METALS AND REGULATORY STANDARDS — All Results in Micrograms per Liter (ug/L)

Station ID	Base Screen Depth (ft bgs)	Sample Date	Type	Aluminum 50	Antimony 6	Arsenic 10	Barium 2000	Beryllium 4	Cadmium 5	Calcium NE	Chromium 100	Cobalt NE	Copper 1000	Iron 300	Lead 15	Magnesium NE	Manganese 50	Mercury 2	Molybdenum NE	Nickel 100	Potassium NE	Selenium 50	Silver 100	Sodium NE	Thallium 2	Vanadium NE	Zinc 5000
02_DGMW59	89	15-Dec-92	F	**672.0**	12.1 U	1.8 B	49.9 B	NS	NS	NS	3.7 U	NS	2.5 B	**895.0**	0.6 U	34,100	**239.0**	NS	NS	10.2 B	4,360 B	1.9 BW	2.2 B	95,500	NS	8.3 B	34.4
		23-Jun-93	F	7.8 B	**9.7 B**	0.7 B	65.6 B	NS	NS	NS	2.9 U	NS	0.8 B	41.4 B	0.4 U	80,400	**63.0**	NS	NS	**183.0**	8,200	15.0 N	1.2 U	126,000	NS	5.9 B	5.1 B
		16-Aug-95	F	12.2 U	2.4 U	2.2 B	110.0 B	NS	NS	NS	1.3 U	NS	4.5 B	26.6 J	1.7 U	47,400	**367.0 J**	NS	NS	15.5 B	2,800 B	4.9 B	1.5 U	104,000	NS	6.4 B	10.8 B
		30-Nov-95	F	26.0 U	2.2 U	3.3 B	80.6 B	NS	NS	NS	0.9 J	NS	4.8 B	54.5 J	1.5 U	38,800	**60.9 J**	NS	NS	11.7 J	2,400 B	11.2 J	0.8 U	105,000	NS	7.8 B	10.6 J
		6-Feb-96	F	200.0 U	60.0 U	10.0 U	200.0 U	NS	NS	NS	10.0 U	NS	25.0 U	100.0 U	3.0 U	42,000	15.0	NS	NS	40.0 U	2,250 J	20.0	10.0 U	111,000	NS	50 U	20.0 U
		6-Feb-96	UF	**420.0**	60.0 U	10.0 U	200.0 U	NS	NS	NS	21.0	NS	30.0	**1200.0**	3.0 U	41,000	**64.0**	NS	NS	40.0 U	2,290 J	20.0	10.0 U	109,000	NS	50.0 U	20.0 U
		6-Feb-96	F	200.0 U	60.0 U	10.0 U	200.0 U	NS	NS	NS	10.0 U	NS	25.0 U	100.0 U	3.0 U	42,000	43.0	NS	NS	40.0 U	2,290 J	18.0	10.0 U	111,000	NS	50 U	20.0 U
		6-Feb-96	UF	**460.0**	60.0 U	10.0 U	200.0 U	NS	NS	NS	21.0	NS	25.0 U	**880.0**	3.0 U	42,000	**56.0**	NS	NS	40.0 U	2,310 J	17.0	10.0 U	111,000	NS	50 U	20.0 U
		4-Nov-96	* F	40.7 B	60.0 U	2.8 B	103.0 B	NS	NS	NS	2.1 B	NS	5.6 B	30.3 B	5.0 U	43,100	**84.9**	NS	NS	16.5 B	2,180 B	3.5 B	10.0 U	102,000	NS	8.3 B	11.8 B
		26-Mar-97	* F	200.0 U	60.0 U	4.5 B	46.3 B	NS	NS	NS	1.1 B	NS	5.0 B	7.5 B	5.0 U	26,100	2.1 B	NS	NS	16.8 B	1,520 B	4.6 B	10.0 U	61,700	NS	8.5 B	6.3 B
		25-Sep-01	* F	56.3 U	4.9 U	3.1 B	106.0 B	NS	NS	NS	17.8	NS	4.4 U	130.0	0.8 U	41,300	**67.4**	NS	NS	17.4 B	2,110 B	1.7 U	0.3 U	105,000	NS	11.1 B	22.3
		23-Sep-02	* F	40.2 J	60.0 U	10.0 U	79.7 J	NS	NS	NS	2.3 J	NS	2.0 J	25.5 U	3.0 U	34,400	1.2 J	NS	NS	29.3 J	1,630 J	5.4	10.0 U	76,300	NS	6.9 J	21.4
		24-Sep-03	* F	**52.7 J**	3.4 U	1.9 U	119.0 J	NS	NS	NS	28.9 J	NS	6.5 U	126.0 U	6.8	44,600	4.9 J	NS	NS	23.5 J	1,880 J	3.8 U	2.4 U	80,800	NS	9.6 J	43.7 U
		21-Sep-04	* F	10.0 UJ	2.2 U	11.2 U	117.0 B	NS	NS	NS	2.7 B	NS	1.7 J	36.8 J	0.9 U	40,800	5.5 U	NS	NS	15.6 J	1,730 B	2.7 U	0.8 U	78,200	NS	9.6 B	6.0 U
		21-Sep-05	* F	18.7 U	60 U	3.7 J	110 J	5.0 U	5.0 U	137,000	2.5 J	0.48 U	3.3 U	5.6 U	3 U	34,100	1.1 U	0.38 UJ	9.2 U	4.9 U	1,620 J	5.0 U	10 U	69,500	2.9 U	10.4 J	4.5 U
		21-Mar-06	* F	200 U	60 U	5.6 U	134 J	5.0 U	5.0 U	172,000	3.5 J	50 U	11.8 J	24.3 U	3 U	44,900	15.0 U	0.059 U	8.1	5.4 J	1,670 J	5.9	10 U	82,400	10 U	9 J	12.1 J
02_DGMW60	100	18-Nov-92	F	31.0 U	12.1 U	0.7 U	59.8 B	NS	NS	NS	3.7 U	NS	4.1 B	57.1 B	0.6 U	64,000	24.1	NS	NS	7.7 U	7,740	8.0 BN	2.1 U	129,000	NS	7.0 B	6.6 B
		23-Jun-93	F	20.2 B	**12.4 B**	1.6 B	36.7 B	NS	NS	NS	2.9 U	NS	1.9 B	31.8 B	0.4 U	29,500	42.2	NS	NS	31.3 B	4,390 B	3.3 BSN	1.2 U	77,400	NS	6.9 B	8.0 B
		15-Aug-95	F	12.1 U	2.4 U	2.1 U	77.1 B	NS	NS	NS	1.3 U	NS	1.5 B	24.1 UJ	1.7 U	96,500	4.6 J	NS	NS	8.0 B	10,700	13.3	1.5 U	126,000	NS	7.7 B	1.2 B
		28-Nov-95	F	12.1 U	2.2 U	3.0 U	69.4 B	NS	NS	NS	0.7 B	NS	0.7 U	18.5 U	1.5 U	94,900	1.6 B	NS	NS	5.3 B	10,600	15.2	0.8 U	131,000	NS	7.1 B	1.5 U
		6-Feb-96	F	200.0 U	60.0 U	10.0 U	200.0 U	NS	NS	NS	10.0 U	NS	25.0 U	100.0 U	3.0 U	89,000	15.0 U	NS	NS	40.0 U	8,090	6.0	10.0 U	124,000	NS	50 U	20.0 U
		6-Feb-96	UF	200.0 U	60.0 U	10.0 U	200.0 U	NS	NS	NS	23.0	NS	25.0 U	**500.0**	3.0 U	82,000	46.0	NS	NS	43.0	7,350	10.0	10.0 U	120,000	NS	U	20.0 U
		6-Feb-96	F	200.0 U	60.0 U	10.0 U	200.0 U	NS	NS	NS	10.0 U	NS	25.0 U	100.0 U	**15.0**	91,000	17.0	NS	NS	40.0 U	8,540	9.0	10.0 U	127,000	NS	50 U	20.0 U
		6-Feb-96	UF	200.0 U	60.0 U	10.0 U	200.0 U	NS	NS	NS	10.0 U	NS	25.0 U	123.0	6.0	84,000	**86.0**	NS	NS	43.0	7,700	12.0	10.0 U	126,000	NS	50 U	20.0 U
		4-Nov-96	* F	45.3 B	60.0 U	2.0 B	79.7 B	NS	NS	NS	4.1 B	NS	3.6 B	24.7 B	5.0 U	87,900	3.1 B	NS	NS	40.0 U	8,880	9.8	10.0 U	121,000	NS	4.9 B	7.2 B
		26-Mar-97	* F	16.0 B	60.0 U	10.0 U	73.3 B	NS	NS	NS	2.4 B	NS	8.2 B	58.7 B	5.0 U	87,600	2.4 B	NS	NS	4.9 B	10,000	11.8	10.0 U	120,000	NS	7.3 B	6.9 B
		1-Jul-97	* F	40.6 B	2.8 B	1.4 U	76.4 B	NS	NS	NS	0.9 B	NS	3.7 B	34.4 B	0.8 U	93,900	2.6 B	NS	NS	6.1 B	10,500	14.9	0.7 U	132,000	NS	7.6 B	12.3 B
		28-Oct-97	* F	15.8 U	1.6 U	2.1 U	71.6 B	NS	NS	NS	0.3 U	NS	2.8 B	4.2 U	1.0 U	88,500	1.5 B	NS	NS	5.8 B	10,000 E	12.1	0.7 U	126,000	NS	7.4 B	6.5 B
		28-Oct-97	* F	17.6 B	1.6 U	2.1 U	72.3 B	NS	NS	NS	0.3 U	NS	3.8 B	11.3 B	1.0 U	88,300	1.7 B	NS	NS	5.3 B	10,100 E	13.4	0.7 U	128,000	NS	7.5 B	6.4 B
		21-Jun-00	* F	20.8 U	2.2 B	2.0 B	71.7 B	NS	NS	NS	1.2 J	NS	1.5 U	2.5 U	0.7 U	89,400	1.3 U	NS	NS	0.9 UJ	10,400 J	15.1	0.3 U	121,000	NS	7.4 B	3.3 B
		25-Sep-01	* F	30.7 U	2.2 U	1.5 U	69.4 B	NS	NS	NS	2.4 B	NS	1.6 U	57.2 U	0.8 U	83,600	5.7 B	NS	NS	6.1 B	9,900	13.8	0.3 U	114,000	NS	7.6 B	10.1 B
		23-Sep-02	* F	21.2 J	2.2 J	10.0 U	73.9 J	NS	NS	NS	0.74 J	NS	1.9 J	37.4 U	3.0 U	84,200	4.1 J	NS	NS	7.0 J	9,570	17.4	10.0 U	111,000	NS	7.3 J	15.8 J
02_DGMW61	100	14-Dec-92	F	31.0 U	12.1 U	0.7 B	40.3 BE	NS	NS	NS	3.7 U	NS	0.9 U	4.1 B	0.6 U	22,600 E	**115.0**	NS	NS	7.7 U	4,390 B	4.4 B	2.1 U	57,900 E	NS	4.8 B	2.2 U
		22-Jun-93	F	12.3 B	9.0 U	0.6 B	32.4 BE	NS	NS	NS	2.9 U	NS	0.7 U	71.1 B	0.4 U	22,800	**90.0**	NS	NS	7.1 U	3,710 B	10.5 N*	1.2 U	57,800	NS	1.7 U	3.2 B
		16-Aug-95	F	12.2 U	2.4 U	2.1 U	42.3 B	NS	NS	NS	1.3 U	NS	1.1 U	24.2 UJ	1.7 U	28,900	**62.9 J**	NS	NS	1.6 U	4,730 B	**53.1**	1.5 U	65,300	NS	1.3 B	1.3 B
		29-Nov-95	F	22.6 U	2.2 U	3.3 U	39.8 B	NS	NS	NS	0.6 B	NS	0.7 U	21.6 B	1.5 U	30,100	20.2	NS	NS	1.0 B	4,300 B	**95.5**	0.8 U	67,400	NS	1.1 U	2.9 U
		8-Feb-96	F	200.0 U	60.0 U	10.0 U	200.0 U	NS	NS	NS	10.0 U	NS	25.0 U	100.0 U	3.0 U	30,000	15.0 U	NS	NS	40.0 U	3,510 J	**57.0**	10.0 U	60,000	NS	50 U	20.0 U
		8-Feb-96	UF	200.0 U	60.0 U	10.0 U	200.0 U	NS	NS	NS	10.0 U	NS	25.0 U	100.0 U	3.0 U	30,000	15.0 U	NS	NS	40.0 U	3,570 J	46.0	10.0 U	61,000	NS	50 U	20.0 U
		4-Nov-96	* F	53.2 B	60.0 U	3.2 B	49.5 B	NS	NS	NS	4.1 B	NS	3.4 B	100.0 U	5.0 U	28,900	3.0 B	NS	NS	40.0 U	3,870 B	34.3	10.0 U	61,600	NS	50 U	8.6 B
		26-Mar-97	* F	20.7 B	60.0 U	1.8 B	39.5 B	NS	NS	NS	2.2 B	NS	8.3 B	100.0 U	5.0 U	27,100	2.1 B	NS	NS	1.7 B	3,980 B	36.8	10.0 U	59,300	NS	50 U	6.1 B
		2-Jul-97	* F	14.8 B	3.2 B	1.4 U	45.0 B	NS	NS	NS	3.4 B	NS	3.0 B	26.3 B	0.8 U	31,600	8.0 B	NS	NS	1.8 B	4,510 B	37.1	0.7 U	69,900	NS	1 U	13.6 B
		28-Oct-97	* F	15.8 U	1.6 U	2.1 U	44.2 B	NS	NS	NS	2.5 B	NS	3.2 B	4.2 U	1.0 U	30,600	0.6 B	NS	NS	2.1 B	4,590 BE	39.0	0.7 U	70,500	NS	1.0 B	6.9 B
		25-Sep-01	* F	38.2 U	5.0 U	1.5 U	40.9 B	NS	NS	NS	5.5 B	NS	2.0 U	63.4 U	0.8 U	27,700	4.9 B	NS	NS	33.3 B	4,180 B	44.8	0.3 U	67,200	NS	0.86 B	12.1 B
		23-Sep-02	* F	16.2 J	60.0 U	10.0 U	36.5 J	NS	NS	NS	2.0 J	NS	3.2 J	15.1 U	3.0 U	22,500	2.6 J	NS	NS	14.8 J	2,910 J	45.5	10.0 U	52,300	NS	0.93 J	8.0 J
02NEW2	95	21-Dec-95	F	11.3 U	2.5 U	3.4 B	77.8 B	NS	NS	NS	1.7 B	NS	2.7 B	30.3 B	1.6 U	45,700	14.2 B	NS	NS	6.5 B	2,270 B	7.8	0.7 U	89,200	NS	14.3 B	3.5 B
		26-Nov-96	* F	27.4 B	60.0 U	3.5 B	67.1 B	NS	NS	NS	1.7 B	NS	3.8 B	50.5 B	1.5 B	33,600	6.8 B	NS	NS	12.9 B	1,730 B	5.9	10.0 U	76,400	NS	13.8 B	12.9 B
		26-Mar-97	* F	35.8 B	60.0 U	3.2 B	78.6 B	NS	NS	NS	1.3 B	NS	9.8 B	24.2 B	5.0 U	37,500	3.0 B	NS	NS	8.4 B	1,900 B	8.9	10.0 U	82,900	NS	12.9 B	10.0 B
		3-Jul-97	* F	15.5 B	1.3 U	2.3 B	75.0 B	NS	NS	NS	1.8 B	NS	2.1 B	6.9 B	0.8 U	37,100	1.0 U	NS	NS	8.1 B	1,800 B	12.2	0.7 U	87,700	NS	14 B	10.2 B

Table 8 (continued)
Metals Analyses
Former MCAS El Toro, California

TARGET ANALYTE LIST METALS AND REGULATORY STANDARDS — All Results in Micrograms per Liter (ug/L)

Station ID	Base Screen Depth (ft bgs)	Sample Date	Type	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
				50	6	10	2000	4	5	NE	100	NE	1000	300	15	NE	50	2	NE	100	NE	50	100	NE	2	NE	5000
02NEW2 (cont.)	95	28-Oct-97	* F	33.4 U	1.5 B	4.1 B	71.7 B	NS	NS	NS	2.3 B	NS	5.7 B	14.0 U	1.2 B	34,500	2.8 B	NS	NS	8.7 B	1,800 B	13.4	0.7 U	81,600	NS	14.7 B	1.7 B
		20-Jun-00	* F	22.6 U	3.2 B	5.0 B	66.0 B	NS	NS	NS	1.3 J	NS	1.5 U	2.5 U	0.7 U	31,600	1.7 U	NS	NS	1.8 UJ	1,700 J	18.8	0.3 U	76,300	NS	14.5 B	5.3 B
		25-Sep-01	* F	35.7 U	6.5 U	3.6 B	69.3 B	NS	NS	NS	1.8 B	NS	1.6 U	51.2 U	0.8 U	32,600	4.8 B	NS	NS	1.4 UJ	1,760 B	21.2	0.3 U	75,400	NS	15.1 B	8.2 U
		23-Sep-02	* F	29.2 J	60.0 U	10.0 U	73.6 J	NS	NS	NS	0.71 J	NS	2.4 J	39.0 U	3.0 U	32,600	0.75 J	NS	NS	1.4 U	1,580 J	21.5	10.0 U	71,200	NS	14.3 J	6.4 J
		29-Sep-03	* F	37.5 J	4.3 U	1.8 U	80.5 J	NS	NS	NS	3.4 J	NS	5.1 U	27.2 U	5.0	35,000	1.9 U	NS	NS	1.7 UJ	1,720 J	21.1	1.3 U	77,100	NS	14.2 J	24.9 J
		21-Sep-04	* F	10.0 U	2.2 U	11.4 U	90.0 B	NS	NS	NS	8.1 B	NS	1.7 U	52.5 B	0.9 U	37,100	1.9 U	NS	NS	5.2 UJ	1,690 B	14.1 J	0.8 U	73,300	NS	14.6 B	6.0 U
		21-Sep-05	* F	25.0 U	60.0 U	5.6 J	96.8 J	5.0 U	5.0 U	157,000	1.3 U	50 U	1.1 U	3.0 U	3.0 U	41,100	1.7 U	0.051 UJ	33.3	1.8 U	2,170 J	5.7	10.0 U	84,400	3.6 U	14.4 J	5.6 U
		22-Mar-06	* F	26.6 J	60.0 U	6.0 U	94.4 J	5.0 U	0.5 U	160,000	4.0 J	50 U	14.7 J	41.9 J	2.9 U	42,000	1.4 U	0.088 U	32	2.4 J	1,760 J	9.8	10.0 U	90,500	3.7 U	14.4 J	11.0 J
02NEW7	143	1-Oct-04	F	19.0 U	5.7 U	2.2 B	78.4 B	NS	NS	NS	1.7 U		4.0 U	6.5 U	1.2 U	40,400	3.7 U			1.2 U	1,390 J	13.9 J	1.6 U	90,700		13.7 U	111.0
		26-Sep-05	F	20.3 U	60.0 U	10.0 U	90.7 U	5.0 U	5.0 U	155,000	9.2 U	50 U	8.9 U	70.2 U	3.4	40,500	1.2 U	0.2 U	40.4 U	3.0 U	1,730 UJ	14.8 J	1.8 U	74,800	10 U	12.4 U	25.3 U
		16-Mar-06	F	27.8 J	60.0 U	7.1 U	79.9 J	5.0 U	5.0 U	155,000	3.0 J	50 U	3.9 UJ	40.4 J	3.0 U	40,400	1.8 UJ	0.096 UJ	41.1	2.1 J	1,930 J	13.6	10.0 U	78,500	10 U	12.6 J	23.1
02NEW8A	104	27-Dec-95	F	11.3 U	2.5 U	2.8 U	17.1 B	NS	NS	NS	2.1 B	NS	1.4 B	24.8 B	1.6 U	24,000	14.0 B	NS	NS	6.5 B	1,990 B	16.4	0.7 U	57,800	NS	5.1 B	6.5 B
		7-Nov-96	* F	25.8 B	60.0 U	2.1 B	49.3 B	NS	NS	NS	3.2 B	NS	3.3 B	5.9 B	1.1 B	24,100	5.8 B	NS	NS	22.7 B	1,830 B	19.0	10.0 U	57,500	NS	4.3 B	6.2 B
		25-Mar-97	* F	7.8 B	60.0 U	3.7 B	41.9 B	NS	NS	NS	2.4 B	NS	6.1 B	8.1 B	1.5 B	23,300	2.4 B	NS	NS	6.3 B	1,600 B	17.2	10.0 U	52,100	NS	3.9 B	8.6 B
		2-Jul-97	* F	38.6 B	5.2 B	2.8 B	40.0 B	NS	NS	NS	2.0 B	NS	2.7 B	48.3 B	0.8 U	24,000	7.1 B	NS	NS	24.7 B	1,720 B	16.6	0.7 U	55,900	NS	3.9 B	12.7 B
		28-Oct-97	* F	33.4 U	1.5 B	2.8 B	35.7 B	NS	NS	NS	1.5 B	NS	2.0 B	14.0 U	1.3 B	24,000	3.6 B	NS	NS	86.0 B	2,320 BE	14.5 U	0.7 U	55,900	NS	3.2 B	2.7 B
		25-Sep-01	* F	88.6 B	5.5 U	3.6 B	43.7 B	NS	NS	NS	2.8 B	NS	3.1 U	76.4 B	0.8 U	29,400	5.1 B	NS	NS	0.2 B	1,820 B	23.8	0.3 U	57,300	NS	4.2 B	9.6 U
		23-Sep-02	* F	26.8 J	2.4 J	10.0 U	45.3 J	NS	NS	NS	3.1 J	NS	1.7 J	40.5 U	3.0 U	28,200	1.1 J	NS	NS	3.7 J	1,610 J	24.8	10.0 U	55,600	NS	4.0 J	11.9 J
		23-Sep-03	* F	19.7 U	60.0 U	1.8 J	51.1 J	NS	NS	NS	2.9 J	NS	3.5 U	9.3 U	3.0 U	31,400	2.8 U	NS	NS	1.9 U	1,780 U	17.2	1.2 U	61,400	NS	3.6 J	8.9 J
		20-Sep-04		26.1 B	4.1 U	8.5 U	55.2 B	NS	NS	NS	5 B	NS	1.7 U	37.7 B	0.9 U	34,100	1 U	NS	NS	2.8 UJ	1,980 B	19.1 J	0.8 U	63,500	NS	3.3 U	5.6 U
		20-Sep-05	* F	26.6 U	60.0 U	4.0 J	42.5 J	0.12 U	5.0 U	127,000	2.0 J	50 U	0.99 U	26.0 U	3.0 U	26,800	3.9 U	0.02 UJ	10.5 U	1.3 U	1,600 J	8.9	10.0 U	55,700	4 U	4.4 U	1.8 U
		16-Mar-06	* F	21.8 J	60.0 U	7.3 U	41.9 J	5.00 U	5.0 U	135,000	2.7 J	50 U	1.50 U	22.2 J	3.0 U	27,100	0.66 U	0.075 U	13.2	1.0 J	1,608 J	10.9	10.0 U	56,400	10 U	5 J	2.3 J
02NEW11	65	21-Dec-95	F	11.8 B	2.5 U	2.8 U	91.4 B	NS	NS	NS	2.3 B	NS	1.6 B	55.5 B	1.6 U	48,200	43.4	NS	NS	98.2	3,500 B	7.2	0.7 U	101,000	NS	11.3 B	4.5 B
		12-Nov-96	* F	45.1 B	60.0 U	4.8 B	82.8 B	NS	NS	NS	3.9 B	NS	2.9 B	45.7 B	1.2 B	29,800	21.8	NS	NS	**153**	2,380 B	5.0 U	10.0 U	82,000	NS	10.6 B	13.1 B
		25-Mar-97	* F	11.6 B	60.0 U	4.2 B	68.6 B	NS	NS	NS	0.9 B	NS	5.2 B	15.7 B	5.0 U	25,400	19.2	NS	NS	**150**	2,340 B	5.6	10.0 U	75,200	NS	11.5 B	5.2 B
		8-Jul-97	* F	**52.2** B	3.8 B	3.3 B	72.5 B	NS	NS	NS	3.8 B	NS	4.3 B	59.0 B	0.8 U	27,000	38.2	NS	NS	**272**	2,870 B	7.6	0.7 U	83,500	NS	11.8 B	61.7
		22-Jun-00	* F	**198.0** J	2.0 J	4.7 B	292.0 J	NS	NS	NS	1.2 J	NS	1.5 U	271.0 J	0.7 U	30,300 J	13.4 B	NS	NS	**191** J	2,570 J	15.6	0.3 U	76,200	NS	12.2 B	7.9 J
		22-Jun-00	* F	28.5 UJ	1.4 U	3.9 B	84.3 J	NS	NS	NS	0.8 J	NS	1.5 U	20.6 UJ	0.7 U	29,900 J	12.8 J	NS	NS	**187**	2,560 J	15.3	0.3 U	75,600	NS	11.5 B	10.2 J
		25-Sep-01	* F	**319.0**	3.9 U	3.3 B	80.2 B	NS	NS	NS	4.7 B	NS	12.8 U	78.8 B	2.6 B	27,200	23.1	NS	NS	**221**	2,270 B	10.2	0.3 U	68,800	NS	11.7 B	19.7 B
		23-Sep-02	* F	19.6 J	2.2 UJ	10.0 U	74.0 J	NS	NS	NS	1.6 J	NS	2.9 UJ	31.5 U	3.0 U	24,700	22.6	NS	NS	**186**	1,670 J	18.9	10.0 U	57,600	NS	8.4 J	11.3 J
		29-Sep-03	* F	29.0 J	4.6 UJ	4.1 UJ	95.0 J	NS	NS	NS	3.0 J	NS	5.0 U	19.2 U	6.9 J	30,200	10.0 J	NS	NS	**169** J	2,450 J	4.7 U	2.0 UJ	82,100	NS	10 J	55.0 J
		20-Sep-04	* F	32.6 B	2.3 U	7.0 U	111.0 B	NS	NS	NS	2.7 B	NS	4.0 U	47.4 B	0.9 U	35,100	8.9 U	NS	NS	**163** J	3,220 B	2.7 U	0.8 U	90,500	NS	10.6 B	23.5
		20-Sep-05	* F	20.8 U	60.0 U	4.7 J	124.0 J	5.0 U	5.0 U	153,000	1.1 U	0.48 U	1.0 U	13.4 U	3.0 U	46,400	9.0 U	0.36 UJ	11.1 U	**131.0**	4,380 J	5.0 U	10.0 U	112,000	3.3 U	11.9 J	3.1 U
		21-Mar-06	* F	25.0 J	60.0 U	6.6 U	107.0 J	5.0 U	5.0 U	147,000	1.8 J	50 U	14.9 J	32.2 J	3.0 U	42,700	9.2 J	0.068 U	7.5	**223.0**	3,410 J	5.0 U	10.0 U	112,000	3.8 U	9.2 J	11.6 J
02NEW15	70	22-Jun-00	* F	26.0 U	3.7 B	7.9 B	56.6 B	NS	NS	NS	1.0 J	NS	1.5 U	12.1 U	0.7 U	42,800	**75.9** U	NS	NS	7.8 UJ	1,870 J	2.3 B	0.3 U	114,000	NS	11.1 B	7.5 B
		25-Sep-01	* F	33.9 UJ	1.5 UJ	4.4 B	55.8 B	NS	NS	NS	15.9 J	NS	1.9 UJ	104.0 J	0.8 U	41,400	**50.8**	NS	NS	15.9 J	1,730 B	1.7 U	0.3 U	105,000	NS	11.6 B	11.8 J
		25-Sep-01	* F	**107.0** J	5.0 UJ	4.6 B	55.0 B	NS	NS	NS	1.8 J	NS	1.6 UJ	23.9 UJ	0.8 U	42,900	**59.1**	NS	NS	11.0 J	1,930 B	1.7 U	0.3 U	110,000	NS	12.1 B	9.6 UJ
		23-Sep-02	* F	27.6 J	60.0 U	10.0 U	51.5 J	NS	NS	NS	2.1 J	NS	2.1 J	66.2 J	3.0 U	39,400	8.1 J	NS	NS	25.5 J	1,550 J	2.8 J	10.0 U	101,000	NS	12.2 J	23.9
		22-Sep-03	* F	16.9 U	60.0 U	2.9 J	54.8 J	NS	NS	NS	2.6 J	NS	3.7 U	21.4 U	3.0 U	43,400	14.8 J	NS	NS	35.2 J	1,630 J	5.0 U	1.3 U	108,000	NS	12.7 J	7.5 J
		22-Sep-04	* F	10.0 U	2.2 U	8.2 U	3.5 U	NS	NS	NS	0.86 B	NS	2.8 U	20.4 U	0.9 U	223 B	0.67 U	NS	NS	1.8 UJ	2,350 B	2.7 U	0.8 U	547,000	NS	12.9 B	356.0
		21-Sep-05	* F	37.6 U	60.0 U	5.4 J	43.2 J	5.0 U	5.0 U	131,000	1.8 J	0.46 U	1.9 U	17.3 U	3.0 U	34,600	3.8 U	0.053 UJ	14.7 U	10.6 U	1,730 J	5.0 U	10.0 U	96,500	3.4 U	12.1 J	16.5 J
		22-Mar-06	* F	28.0 J	60.0 U	6.7 U	59.3 J	5.0 U	5.0 U	175,000	2.7 J	50 U	15.1 J	38.7 J	1.6 U	47,200	39.3	0.065 U	11	24.9 J	2,270 J	5.0 U	10.0 U	115,000	2.3 U	11.4 J	10.7 J
02NEW16	65	25-Sep-01	* F	81.0 U	4.3 U	3.1 B	107 B	NS	NS	NS	7.0 B	NS	3.5 U	98.4 B	0.8 U	33,700	5.3 B	NS	NS	4.5 B	957 B	14.0	0.3 U	68,600	NS	17.3 B	23.6
		23-Sep-02	* F	20.1 J	2.7 J	10.0 U	110 J	NS	NS	NS	1.9 J	NS	25.0 U	27.9 J	3.0 U	34,200	0.81 J	NS	NS	2.9 U	1,000 J	16.0	10.0 U	67,400	NS	17.0 J	7.1 J
		21-Sep-05	* F	29.2 U	60.0 U	5.5 J	148.0 J	0.11 U	5.0 U	172,000	2.1 J	0.42 U	1.8 U	11.0 U	3.0 U	46,700	1.7 U	0.1 UJ	56	1.9 U	1,140 J	16.0	10.0 U	77,100	4.6 U	17.2 J	3.5 U
		22-Mar-06	* F	20.6 J	60.0 U	5.1 U	142.0 J	5.00 U	5.0 U	167,000	1.9 J	50 U	12.5 J	27.6 J	3.0 U	43,900	15.0 U	0.061 U	46.7	40.0 U	1,070 J	16.2	10.0 U	83,800	2.1 U	16 J	7.1 J

Table 8 (continued)
Metals Analyses
Former MCAS El Toro, California

TARGET ANALYTE LIST METALS AND REGULATORY STANDARDS — All Results in Micrograms per Liter (ug/L)

Station ID	Base Screen Depth (ft bgs)	Sample Date	Type	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
				50	6	10	2000	4	5	NE	100	NE	1000	300	15	NE	50	2	NE	100	NE	50	100	NE	2	NE	5000
03_DGMW64A	250	17-Sep-01	F	27.3 U	4.5 U	10.0 U	28.5 J	NS	NS	NS	33.9 J	NS	7.4 U	270 J	1.1 J	41,600	46.2	NS	NS	**631**	5,610 J	13.8	10.0 U	195,000	NS	11.1 J	31.2
		25-Sep-02	F	17.3 J	60.0 U	10.0 U	26.9 J	NS	NS	NS	3.5 J	NS	6.5 U	12.7 U	1.4 J	40,800	30.6	NS	NS	**368**	5,240 J	14.2 U	10.0 U	200,000	NS	10.8 J	624.0
		22-Sep-03	F	32.7 J	60.0 U	10.0 U	27.7 J	NS	NS	NS	3.0 J	NS	6.9 U	34.2 U	1.7 J	41,900	30.1	NS	NS	**580**	5,320 J	13.5	0.6 U	204,000	NS	9.7 J	235.0
		30-Sep-04		16.3 U	5.8 U	2.1 U	25.1 U	NS	NS	NS	4.7 U	NS	5.5 U	132.0	1.2 U	38,200	21	NS	NS	**372**	3,660 J	9.6 J	2.1 U	196,000	NS	14 U	213.0
		7-Sep-05	F	29.9 U	3.5 U	3.2 J	32.5 J	5.0 U	5.0 U	61,700	12.7	0.68 U	2.0 U	85.2 U	3.0 U	41,100	12.5 U	0.37	29.8	**277.0**	4,630 J	6.4	10.0 U	203,000	4.3 U	19.8 J	72.6
		15-Mar-06	* F	200.0 U	60.0 U	6.2 U	29.8 J	5.00 U	5.0 U	61,500	7.4 J	50 U	3.4 U	37.2 J	3.0 U	41,000	11.9 J	0.034 U	28.9	222.0	4,780 J	9.3	10.0 U	197,000	1.9 J	20 J	512.0
03_DGMW65X	270	18-Jan-93	F	47.5 B	12.1 U	2.6 B	46.4 B	NS	NS	NS	3.7 U	NS	4.3 B	4.1 B	0.6 U	27,300	**238**	NS	NS	**166**	3,850 B	14.7 SN	2.1 U	168,000	NS	13.8 B	3.3 B
		7-Jul-93	F	7.8 B	**11.7** B	0.7 B	34.7 B	NS	NS	NS	4.4 B	NS	1.2 B	31.1 B	0.4 U	24,400	**189**	NS	NS	**1140**	3,550 B	8.1 SN	1.2 U	174,000	NS	8.2 B	1.6 B
		26-Feb-96	F	**450**	60.0 U	11.0	200.0 U	NS	NS	NS	**190**	NS	25.0 U	**5,370**	7.0	38,000	**55**	NS	NS	**760**	4,280 J	5.0 U	10.0 U	188,000	NS	50 U	71.0
		26-Feb-96	UF	**203**	60.0 U	10.0 U	200.0 U	NS	NS	NS	**150**	NS	29.0	**3,940**	5.0	37,000	**130**	NS	NS	**620**	4,130 J	5.0 U	10.0 U	170,000	NS	50 U	44.0
		11-Nov-96	F	34.6 B	60.0 U	4.3 B	60.4 B	NS	NS	NS	6.9 B	NS	4.3 B	26 B	1.3 B	37,400	12 B	NS	NS	**567**	3,470 B	17.4	10.0 U	155,000	NS	18.9 B	21.2
		4-Mar-97	F	18 B	60.0 U	2.7 B	52.3 B	NS	NS	NS	6.4 B	NS	3.7 B	32.5 B	5.0 U	36,100	6.1 B	NS	NS	**532**	4,080 B	18.2	10.0 U	164,000	NS	22.5 B	14.0 B
		30-Jun-97	F	34.5 B	3.6 B	1.4 U	47.9 B	NS	NS	NS	10.1	NS	1.8 U	242	0.8 U	34,900	**111**	NS	NS	**1160**	3,950 B	17.1	0.7 U	150,000	NS	10.3 B	19.2 B
		15-Oct-98		200.0 U	2.0 B	2.5 B	52.3 B	NS	NS	NS	7.3 B	NS	5.5 B	46 B	0.8 B	38,900	13.6 B	NS	NS	**711**	3,740 B	16.8	5.0 U	150,000	NS	17.4 B	24.2
		19-Jun-00	* F	7.9 UJ	1.4 U	2.4 B	54.0 B	NS	NS	NS	2.7 J	NS	1.5 U	22.6 UJ	0.7 U	33,300	19.7	NS	NS	**948** J	4,140 J	10.7	0.3 U	178,000	NS	18.4 U	7.8 J
		19-Jun-00	* F	34.1 UJ	2.7 J	2.2 B	53.3 B	NS	NS	NS	4.0 J	NS	2.8 UJ	39.6 UJ	0.7 U	32,900	21.4 U	NS	NS	**944** J	4,100 J	9.8	0.3 U	175,000	NS	18.2 B	28.6 J
03_DGMW65XA	235	17-Sep-01	F	24.4 U	5.1 U	6.0 J	62.6 J	NS	NS	NS	6.5 J	NS	11.3 U	76.9 J	1.8 J	32,600	13.8 J	NS	NS	**134**	2,970 J	15.4	10.0 U	194,000	NS	43 J	22.0
		1-Oct-02	F	31.5 J	3.5 J	6.3 J	61.6 J	NS	NS	NS	4.3 J	NS	11.8 J	68.8 J	2.8 J	33,900	25.1	NS	NS	**149** J	3,010 J	18.8	10.0 U	189,000	NS	40.1 J	393
		22-Sep-03	F	32.5 J	60.0 U	4.5 J	61.8 J	NS	NS	NS	3.4 J	NS	9.5 U	39.5 U	3.3	34,700	19.7	NS	NS	**133**	2,840 J	11.7 U	0.4 U	190,000	NS	37.7 J	62.3
		29-Sep-04		30.6 U	3.5 U	2.1 U	55.6 B	NS	NS	NS	5.8 B	NS	8.5 U	85.6 B	1.2 U	36,800	17.8 U	NS	NS	**212**	2,700 J	14.8 J	1.5 U	215,000	NS	34.1 B	210.0
		7-Sep-05	F	54.9 U	60.0 U	6.6 J	56.6 J	5.00 U	5.00 U	41,800	7.7 J	0.49 U	4.8 U	57.2 U	3.0 U	32,400	19.6	0.23	23.9	**129.0**	3,670 J	5.5	10.0 U	222,000	4.4 U	45.9 J	76.4
		15-Mar-06	* F	25.8 J	60.0 U	9.7 U	64.2 J	5.00 U	5.00 U	48,900	6.0 J	1 U	3.5 U	114.0 J	3.0 U	38,900	45.1	0.11 UJ	29.2	**260.0**	3,840 J	6.5	10.0 U	227,000	2.9 J	41.8 J	1210.0
03_UGMW26	270	1-Oct-92	F	31.0 U	12.1 U	6.0 B	120.0 B	NS	NS	NS	5.6 B	NS	2.7 B	5.1 B	0.6 U	30,900	20.0	NS	NS	28.5 B	2,110 B	13.3 S	2.1 U	133,000	NS	29.7 B	5.5 B
		23-Jun-93	F	22.6 B	**12** B	5.0 B	132.0 B	NS	NS	NS	4.3 B	NS	0.7 U	35.9 B	0.4 U	34,000	5.7 B	NS	NS	57.4	2,860 B	12.7 SN	1.2 U	121,000	NS	33.5 B	3.7 B
		27-Feb-96	F	200.0 U	60.0 U	12.0	200.0 U	NS	NS	NS	**110**	NS	25.0 U	**1,300**	3.0 U	36,000	17.0	NS	NS	62.0	3,340 J	5.0 U	10.0 U	126,000	NS	50 U	23.0
		27-Feb-96	UF	200.0 U	60.0 U	11.0	200.0 U	NS	NS	NS	**110**	NS	25.0 U	**1,300**	3.0 U	37,000	32.0	NS	NS	66.0	3,420 J	5.0 U	10.0 U	13,000	NS	50 U	28.0
		14-Nov-96	F	200.0 U	60.0 U	5.2 B	129.0 B	NS	NS	NS	4.7 B	NS	25.0 U	33.7 B	1.1 B	33,000	6.5 B	NS	NS	62.3	3,060 B	5.1	10.0 U	127,000	NS	33 B	7.4 B
		19-Nov-96	F	200.0 U	60.0 U	6.8 B	130.0 B	NS	NS	NS	4.6 B	NS	1.8 B	27 B	1.1 B	32,400	5.7 B	NS	NS	58.1	2,990 B	5.5	10.0 U	126,000	NS	33.3 B	7.8 B
		6-Mar-97	F	11.2 B	60.0 U	4.5 B	106.0 B	NS	NS	NS	11.9	NS	2.4 B	132	5.0 U	30,200	7.8 B	NS	NS	55.6	2,780 B	11.4	10.0 U	110,000	NS	28.1 B	11.5 B
		1-Jul-97	F	**73.4** B	4.2 B	3.4 B	122.0 B	NS	NS	NS	7.2 B	NS	5.1 B	96.7 B	0.8 U	36,600	9.9 B	NS	NS	94.2	3,610 B	10.9	0.7 U	134,000	NS	34.5 B	16.4 B
		17-Oct-98	F	41.5 B	1.4 U	4.8 B	117.0 B	NS	NS	NS	7.1 B	NS	7.0 B	41.3 B	0.7 U	35,300	9.3 B	NS	NS	81.1	3,180 B	8.2	0.7 U	124,000	NS	32.8 B	25.7 B
		19-Jun-00	* F	59.8 U	2.5 B	4.7 B	110.0 B	NS	NS	NS	7.0 J	NS	12.0 B	33.2 U	1.6 B	34,000	19.3 U	NS	NS	**251** J	3,420 J	7.9	0.3 U	126,000	NS	28.7 B	20.1
		20-Sep-01	* F	30.9 U	5.1 U	6.7 J	110.0 J	NS	NS	NS	4.6 J	NS	25.0 U	29.6 U	1.1 U	33,500	21.5	NS	NS	**215**	3,210 J	7.6 U	10.0 U	128,000	NS	30.2 J	12.8 U
03_UGMW26A	235	20-Sep-01	F	39.5 U	6.6 U	6.0 U	121 J	NS	NS	NS	7.6 J	NS	3.5 U	85 J	2.9 U	33,900	24.7	NS	NS	**320**	3,230 J	9.9	10.0 U	184,000	NS	37.4 J	41.3
		2-Oct-02	F	**113** J	4.1 J	8.6 J	119 J	NS	NS	NS	26.6	NS	6.3 J	486	1.7 J	35,300	17.2	NS	NS	**300** J	3,630 J	14.2	10.0 U	190,000	NS	42.3 J	198
04_DBMW40	260	3-Dec-92	F	**69** B	12.1 U	2.7 BW	57.6 B	NS	NS	NS	3.7 U	NS	0.9 U	34.1 B	0.6 U	50,900	11.7 B	NS	NS	39.4 B	4,110 B	13.6 BN*	2.1 U	181,000	NS	20.1 B	2.2 U
		24-Jun-93	F	8 B	**12.8** B	1.9 B	52.5 BE	NS	NS	NS	2.9 U	NS	1.6 B	51.7 B	0.4 U	46,500	33.5	NS	NS	55.9	3,980 B	20.2 B	1.2 U	184,000	NS	22.9 B	1.5 B
		26-Feb-96	F	**1300**	60.0 U	10.0 U	200.0 U	NS	NS	NS	**81.0**	NS	25.0 U	**3600.0**	8.0	41,000	**120.0**	NS	NS	86	4,940 J	10.0	10.0 U	189,000	NS	51	210.0
		26-Feb-96	UF	**900**	60.0 U	10.0 U	200.0 U	NS	NS	NS	50.0	NS	25.0 U	**2000.0**	8.0	40,000	**110.0**	NS	NS	79	4,700 J	9.0	10.0 U	186,000	NS	50 U	210.0
		12-Nov-96	F	34.9 B	60.0 U	3.5 B	89.7 B	NS	NS	NS	1.9 B	NS	1.9 B	100.0 U	5.0 U	63,500	**64.8**	NS	NS	5 B	4,960 B	5.0	10.0 U	157,000	NS	22.8 B	21.7
		5-Mar-97	F	200 U	60.0 U	3.7 B	50.3 B	NS	NS	NS	2.0 B	NS	6.7 B	23.2 B	5.0 U	36,000	5.8 B	NS	NS	26.4 B	4,200 B	20.1	10.0 U	153,000	NS	28.6 B	8.9 B
		30-Jun-97	F	30.6 B	3.6 B	2.2 B	82.1 B	NS	NS	NS	0.5 U	NS	1.8 U	36.5 B	0.8 U	65,100	**55.2**	NS	NS	9.5 B	5,930	12.1	0.7 U	170,000	NS	25.5 B	20.2
		16-Oct-97	F	33.4 U	1.4 U	3.3 B	78.9 B	NS	NS	NS	2.0 B	NS	5.3 B	14.0 U	0.8 U	56,700	37.7	NS	NS	9.6 B	5,220	10.5	0.7 U	168,000	NS	27.8 B	11.0 B
		19-Jun-00	* F	21.1 B	1.8 U	2.0 B	53.7 B	NS	NS	NS	2.3 J	NS	1.8 U	30.3 U	0.7 U	46,900	24.3 U	NS	NS	**355** J	4,710	11.8	0.3 U	180,000	NS	19.5 B	7.1 B
		20-Sep-01	* F	19.8 U	60.0 U	2.3 U	40.4 J	NS	NS	NS	3.4 J	NS	2.4 U	29.8 U	1.9 U	30,800	19.5	NS	NS	**342**	3,670 J	12.4	10.0 U	169,000	NS	21.9 J	13.1 U
		18-Sep-02	* F	200 U	3.4 U	10.0 U	49.4 J	NS	NS	NS	3.5 J	NS	3.0 J	21.5 U	3.0 U	38,200	49.0	NS	NS	**665**	3,480 J	12.1 U	10.0 U	168,000	NS	16.1 J	9.8 J

Table 8 (continued)
Metals Analyses
Former MCAS El Toro, California

TARGET ANALYTE LIST METALS AND REGULATORY STANDARDS — All Results in Micrograms per Liter (ug/L)

Station ID	Base Screen Depth (ft bgs)	Sample Date - Type	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
			50	6	10	2000	4	5	NE	100	NE	1000	300	15	NE	50	2	NE	100	NE	50	100	NE	2	NE	5000
04_DBMW40 (cont.)	260	23-Sep-03 * F	22.5 U	60.0 U	10.0 U	46.2 J	NS	NS	NS	2.9 J	NS	4.8 U	39.9 U	1.5 J	34,400	11.1 J	NS	NS	**240**	3,630 J	13.6	1.1 U	169,000	NS	23.3 J	5.4 J
		20-Sep-04	32.1 B	2.2 U	4.6 U	49.1 B	NS	NS	NS	3.7 B	NS	1.7 U	43.0 B	0.9 U	37,000	9.5 U	NS	NS	**213 J**	3,710 B	12.3 J	0.8 U	172,000	NS	22.3 B	6.9 U
		20-Sep-05 * F	27.9 U	60.0 U	10.0 U	51.1 J	5.0 U	5.0 U	87,400	3.8 J	4.6 U	1.8 U	48.8 U	3.0 U	40,200	19.0	0.027 U	26.3	**293.0**	4,200 J	5.9	10.0 U	186,000	4.4 U	23.5 J	12.5 J
		17-Mar-06 * F	23.3 J	60.0 U	6.3 U	51.1 J	5.0 U	5.0 U	89,500	5.5 J	4.2 J	3.7 U	46.0 J	3.0 U	42,100	12.3 J	0.027 U	26.1	**250.0**	4,340 J	9.6	10.0 U	191,000	2.2 J	23.9 J	14.5 J
04_UGMW63	275	24-Nov-92 F	31.3 B	**14.7** B	0.9 B	76.8 BE	NS	NS	NS	3.7 U	NS	0.9 U	142	0.6 U	67,200	**337**	NS	NS	17.1 B	3,140 B	8.2 BN	2.1 U	77,400	NS	20.1 B	8.3 B
		25-Jun-93 F	10.5 B	**22.0** B	2.4 B	96.5 BE	NS	NS	NS	2.9 U	NS	1.0 B	8.2 U	0.4 U	70,600	**359**	NS	NS	7.1 U	3,380 B	12.2 B	1.2 U	78,600	NS	23.5 B	4.0 B
		30-Jan-96 F	200.0 U	60.0 U	10.0 U	200.0 U	NS	NS	NS	10.0 U	NS	25.0 U	100 U	5.0	58,000	42	NS	NS	**550.0**	2,810 J	26.0	10.0 U	88,000	NS	50 U	21.0
		30-Jan-96 UF	200.0 U	60.0 U	10.0 U	200.0 U	NS	NS	NS	18.0	NS	25.0 U	**310**	3.0 U	55,000	37	NS	NS	**530.0**	2,590 J	21.0	10.0 U	82,000	NS	50 U	22.0
		14-Nov-96 * F	200.0 U	60.0 U	4.1 B	85.7 B	NS	NS	NS	10.0 U	NS	25.0 U	100 U	2.3 B	59,100	**543**	NS	NS	82.9	3,140 B	7.3	1.3 B	76,400	NS	20.4 B	11.0 B
		19-Nov-96 * F	33.1 B	60.0 U	3.7 B	86.1 B	NS	NS	NS	10.0 U	NS	1.8 B	28.4 B	2.2 B	58,500	**531**	NS	NS	80.1	3,110 B	7.3	10.0 U	75,900	NS	20.1 B	11.3 B
		19-Jun-00 * F	17.0 U	2.4 B	3.0 B	83.3 B	NS	NS	NS	1.5 J	NS	1.5 U	2.5 U	0.7 U	66,500	**723 U**	NS	NS	29.1 J	3,620 J	9.6	0.3 U	97,700	NS	16.7 B	3.0 B
		20-Sep-01 * F	25.7 U	6.4 U	3.0 U	91.1 J	NS	NS	NS	1.3 J	NS	25.0 U	4.3 J	1.2 J	70,600	**839**	NS	NS	29.5 J	3,780 J	12.2	10.0 U	107,000	NS	16.4 J	7.3 J
		18-Sep-02 * F	200.0 U	3.9 U	3.7 U	87.2 J	NS	NS	NS	10.0 U	NS	25.0 U	100 U	3.0 U	65,200	**691**	NS	NS	17.8 J	3,270 J	16.3 U	10.0 U	97,300	NS	16 J	7.3 U
		23-Sep-03 * F	34.0 J	60.0 U	10.0 U	88.9 J	NS	NS	NS	1.4 U	NS	5.3 U	14.5 U	2.1 J	64,900	**684**	NS	NS	17.5	3,520 J	16.6	1.7 J	10,600	NS	16.8 J	3.8 J
		20-Sep-04 * F	10.0 U	2.2 U	6.8 U	91.8 B	NS	NS	NS	2.4 B	NS	2.4 U	32.5 B	0.9 U	62,300	**551**	NS	NS	17.4 J	3,410 B	15.5 J	0.8 U	104,000	NS	18.3 B	4.9 U
		19-Sep-05 * F	24.1 U	60.0 U	10.0 U	76.0 J	5.0 U	5.0 U	136,000	3.7 J	2.2 U	0.91 UJ	16.7 UJ	3.0 U	61,000	25.2	0.2 UJ	15.5 U	**562.0**	3,540 J	18.3	10.0 U	105,000	4.7 U	13.2 J	4.2 UJ
		15-Mar-06 * F	19.3 J	60.0 U	4.5 U	76.2 J	5.0 U	5.0 U	137,000	3.8 J	2.1 U	5.00 U	29.5 J	3.0 U	62,400	21.3	0.091 U	15.8	**664.0**	3,820 J	19.9	10.0 U	107,000	3 J	13.9 J	9.3 J
04_DGMW66	290	20-Nov-92 F	31.0 U	**12.1** U	2.8 B	41.1 BE	NS	NS	NS	3.7 U	NS	0.9 U	36.5 B	0.6 U	30,600	16.8	NS	NS	**107.0**	2,830 B	14.0 BN	2.1 U	112,000	NS	21.2 B	4.2 B
		24-Jun-93 F	8.0 B	9.0 U	3.1 BW	43.6 BE	NS	NS	NS	2.9 U	NS	0.7 U	20.6 B	0.4 U	31,200	4.8 B	NS	NS	**136.0**	2,780 B	17.4 B	1.2 U	108,000	NS	18.6 B	2.2 B
		26-Feb-96 F	**620.0**	60.0 U	10.0 U	200.0 U	NS	NS	NS	**547.0**	NS	25.0 U	**3980**	5.0	33,000	24.0	NS	NS	**110.0**	3,600 J	5.0 U	10.0 U	104,000	NS	50 U	62.0
		26-Feb-96 UF	**410.0**	60.0 U	10.0 U	200.0 U	NS	NS	NS	**370.0**	NS	28.0	**3940**	6.0	33,000	**53.0**	NS	NS	**130.0**	3,580 J	5.0 U	10.0 U	105,000	NS	50 U	100.0
		12-Nov-96 F	**61.7** B	60.0 U	6.4 B	66.1 B	NS	NS	NS	6.7 B	NS	4.8 B	33.7 B	2.4 B	31,900	4.7 B	NS	NS	**121.0**	3,140 B	13.8	10.0 U	107,000	NS	20.6 B	11.6 B
		4-Mar-97 F	200.0 U	60.0 U	3.6 B	52.7 B	NS	NS	NS	4.2 B	NS	5.0 B	17.4 B	5.0 U	30,400	3.3 B	NS	NS	**107.0**	3,360 B	16.4	10.0 U	103,000	NS	18.7 B	6.8 B
		1-Jul-97 F	**53.1** B	2.1 B	3.1 B	64.9 B	NS	NS	NS	5.9 B	NS	5.7 B	86.2 B	0.8 U	36,400	4.9 B	NS	NS	**152.0**	4,180 B	20.7	0.7 U	132,000	NS	23.2 B	10.9 B
		15-Oct-98 F	200.0 U	60.0 U	3.7 B	51.2 B	NS	NS	NS	6.0 B	NS	3.4 B	100.0 U	0.9 B	29,900	3.3 B	NS	NS	**106.0**	3,100 B	14.2	10.0 U	99,300	NS	18.1 B	12.8 B
		20-Sep-01 * F	26.6 U	6.2 U	5.9 U	61.9 J	NS	NS	NS	5.1 U	NS	2.3 U	24.8 U	3.0 U	34,000	6.7 J	NS	NS	**69.8**	3,500 J	16.4	10.0 U	106,000	NS	18.5 J	13.1 U
04_DGMW66A	230	20-Sep-01 F	25.7 U	8.2 U	1.8 J	113 J	NS	NS	NS	1.7 J	NS	5.2 U	29.3 J	3.0 U	69,200	**75.5**	NS	NS	29.8 J	6,820 J	5.0 U	10.0 U	199,00	NS	19.9 J	17.9 J
		30-Sep-02 F	**988**	3.4 J	3.9 J	109 J	NS	NS	NS	2.0 U	NS	9.7 J	**1,420**	3.0 U	59,500	**70.6**	NS	NS	36.8 J	7,350 J	5.0 U	10.0 U	232,000	NS	24.0 J	333
		25-Sep-03 F	69.6 U	60.0 UJ	1.9 UJ	86.8 J	NS	NS	NS	2.8 J	NS	6.5 U	124.0 UJ	4.2	55,800	38.8	NS	NS	31.2 J	6,890	5.0 U	1.6 U	240,000	NS	21.7 J	52.7 J
		29-Sep-04 F	20.4 U	6.5 U	2.1 U	75.6 B	NS	NS	NS	1.2 U	NS	6.3 U	155.0	1.2 U	53,900	**52.1**	NS	NS	32.0 B	5,470 J	2.5 U	1.6 U	264,000	NS	20.2 U	407.0
		7-Sep-05 F	28.5 U	60.0 U	3.5 J	79.2 J	5.0 U	5.0 U	75,200	4.2 J	1.1 U	7.1 U	29.6 U	3.0 U	54,200	**62.3**	0.2 UJ	20.5	**111.0**	-	5.0 U	10.0 U	270,000	5.3 U	21.5 J	276.0
		16-Mar-06 * F	200.0 U	60.0 U	5.9 U	74.4 J	5.0 U	5.0 U	75,900	4.9 J	1.2 U	3.8 U	142.0	3.0 U	54,900	**67.4**	0.026 U	18.7	**219.0**	-	3.5 J	10.0 U	235,000	2.7 J	18.9 J	1690.0
05_DBMW41	222	16-Nov-92 F	31.0 U	12.1 U	1.4 B	22.6 B	NS	NS	NS	3.7 U	NS	0.9 U	14.1 B	0.6 U	29,100	6.5 B	NS	NS	16.0 B	2,830 B	6.4 BN	2.1 U	99,100	NS	10.5 B	2.4 B
		16-Nov-92 F	31.0 U	12.1 U	1.4 B	22.5 B	NS	NS	NS	3.7 U	NS	0.9 U	17.8 B	0.6 U	28,900	6.5 B	NS	NS	13.3 B	2,850 B	8.2 BN	2.1 U	96,900	NS	12.2 B	2.4 B
		20-Oct-93 F	23.5 B*	**18.8** B	1.9 B	47.6 B	NS	NS	NS	2.8 U	NS	4.5 B	12.8 B	0.5 U	32,000	15.0 U	NS	NS	17.8 B	2,610 B	8.2 B	1.8 U	124,000	NS	11.8 B	2.0 B*
		5-Dec-95 F	16.0 U	2.2 U	2.4 B	54.8 B	NS	NS	NS	3.5 J	NS	1.9 B	46.3 J	1.5 U	35,400	1.9 J	NS	NS	14.5 J	3,150 B	5.5 J	0.8 U	154,000	NS	11.8 B	1.7 UJ
		7-Feb-96 F	200.0 U	60.0 U	10.0 U	200.0 U	NS	NS	NS	10.0 U	NS	25.0 U	100.0 U	3.0 U	33,000	15.0 U	NS	NS	40.0 U	2,200 J	6.0	10.0 U	143,000	NS	50 U	20.0 U
		7-Feb-96 UF	200.0 U	60.0 U	10.0 U	200.0 U	NS	NS	NS	10.0 U	NS	25.0 U	100.0 U	3.0 U	33,000	15.0 U	NS	NS	40.0 U	2,140 J	6.0	10.0 U	143,000	NS	50 U	20.0 U
		13-Nov-96 * F	200.0 U	60.0 U	4.2 B	66.0 B	NS	NS	NS	2.7 B	NS	3.0 B	100.0 U	1.0 B	33,200	1.8 B	NS	NS	16.5 B	3,170 B	4.8 B	10.0 U	141,000	NS	11.2 B	5.8 B
		13-Mar-97 * F	200.0 U	60.0 U	2.8 B	61.4 B	NS	NS	NS	2.8 B	NS	5.5 B	16.4 B	5.0 U	34,100	2.8 B	NS	NS	10.3 B	3,720 B	5.5	10.0 U	142,000	NS	10.6 B	14.9 B
		8-Jul-97 * F	11.9 U	4.2 B	1.4 U	58.5 B	NS	NS	NS	1.7 B	NS	2.7 B	25.3 B	0.8 U	34,400	2.5 B	NS	NS	17.0 B	3,200 B	8.6	0.7 U	133,000	NS	10.2 B	10.9 B
		22-Oct-97 * F	200.0 U	1.8 B	2.4 B	63.7 B	NS	NS	NS	2.0 B	NS	4.5 B	100.0 U	0.8 U	37,000	1.3 B	NS	NS	12.1 B	3,110 B	6.6	10.0 U	137,000	NS	10.4 B	3.3 B
		19-Jun-00 * F	11.3 U	1.7 B	2.5 B	65.8 B	NS	NS	NS	1.3 J	NS	1.5 U	2.5 U	0.7 U	36,000	1.3 U	NS	NS	2.9 J	2,980 B	7.0	0.3 U	121,000	NS	9.6 B	2.2 B
05_DBMW41A	185	19-Sep-01 F	24.8 U	5.5 U	3.0 U	65.7 J	NS	NS	NS	2.6 J	NS	2.4 U	9.1 U	2.0 U	35,900	3.5 J	NS	NS	6.2 J	2,860 J	6.3 U	10.0 U	111,000	NS	10.1 J	17.0 U
		30-Sep-02 F	**721**	2.9 J	10.0 U	68.6 J	NS	NS	NS	6.5 J	NS	7.5 J	**866**	1.7 J	33,600	11.6 J	NS	NS	14.2 J	2,820 J	9.9	10.0 U	101,000	NS	12.2 J	338
		18-Sep-03 F	39.2 J	60.0 U	10.0 U	62.7 J	NS	NS	NS	2.0 U	NS	3.2 U	28.0 U	1.9 J	34,900	2.2 U	NS	NS	4.1 J	2,550 U	13.2 U	1.0 U	99,800	NS	9.4 J	184.0
		30-Sep-04 F	11.5 U	4.1 U	2.1 U	59.1 B	NS	NS	NS	2.8 U	NS	4.9 U	**389.0**	1.2 U	34,400	10.8 U	NS	NS	63.0	1,970 J	10.4 J	1.9 U	109,000	NS	9.4 U	306.0

Table 8 (continued)
Metals Analyses
Former MCAS El Toro, California

TARGET ANALYTE LIST METALS AND REGULATORY STANDARDS — All Results in Micrograms per Liter (ug/L)

Station ID	Base Screen Depth (ft bgs)	Sample Date - Type			Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
					50	6	10	2000	4	5	NE	100	NE	1000	300	15	NE	50	2	NE	100	NE	50	100	NE	2	NE	5000
05_DBMW41A (cont.)	185	8-Sep-05		F	29.5 U	60.0 U	3.3 J	65.3 J	0.33 U	5.0 U	130,000	3.5 J	50 U	2.6 U	38.9 U	3.0 U	36,800	3.5 U	0.46	40.8	13.5 J	2,950 J	6.3	10.0 U	119,000	3.6 U	10.3 J	57.0
		15-Mar-06	*	F	40.6 J	60.0 U	5.1 U	59.1 J	5.00 U	5.0 U	118,000	3.7 J	50 U	4.2 U	43.5 J	3.0 U	33,400	2.5 U	0.11 U	40.6	4.5 J	2,890 J	7.9	10.0 U	111,000	2 J	10.4 J	503.0
05_DGMW67	227	30-Nov-92		F	38.9 B	12.1 U	2.6 B	68.5 B	NS	NS	NS	3.7 U	NS	0.9 U	2.3 U	0.6 U	36,100	1.5 B	NS	NS	7.7 U	1,960 B	6.4	2.1 U	127,000	NS	13.2 B	2.2 U
		30-Nov-92		F	50.7 B	12.1 U	2.3 B	69.6 B	NS	NS	NS	3.7 U	NS	0.9 U	2.3 U	0.6 U	36,700	2.3 B	NS	NS	7.7 U	2,090 B	6.3	2.1 U	128,000	NS	14.0 B	2.2 U
		3-Jun-93		F	30.4 B	18.6 B	4.4 BWN	62.2 B	NS	NS	NS	2.9 U	NS	2.1 B	13.6 B	0.4 U	35,400	1.6 B	NS	NS	13.0 B	2,400 B	8.7 B	1.8 B	117,000	NS	14.6 B	2.7 B
		6-Dec-95		F	9.9 U	2.2 U	2.2 B	71.4 B	NS	NS	NS	0.6 J	NS	0.7 U	18.5 UJ	1.5 U	43,400	0.5 J	NS	NS	4.7 J	2,290 B	3.7 UJ	0.8 U	116,000	NS	10.0 B	1.7 UJ
		9-Feb-96		F	200.0 U	60.0 U	10.0 U	200.0 U	NS	NS	NS	10.0 U	NS	25.0 U	100.0 U	3.0 U	43,000	15.0 U	NS	NS	40.0 U	J	5.0 U	10.0 U	116,000	NS	50 U	20.0 U
		9-Feb-96		UF	200.0 U	60.0 U	10.0 U	200.0 U	NS	NS	NS	10.0 U	NS	25.0 U	100.0 U	3.0 U	44,000	15.0 U	NS	NS	40.0 U	1,960 J	5.0 U	10.0 U	116,000	NS	50 U	20.0 U
		13-Nov-96	*	F	244.0	3.1 B	4.4 B	86.4 B	NS	NS	NS	1.2 B	NS	25.0 U	69.5 B	1.6 B	42,400	4.9 B	NS	NS	21.4 B	2,500 B	2.9 B	10.0 U	115,000	NS	9.5 B	6.3 B
		14-Mar-97	*	F	200.0 U	60.0 U	2.7 B	66.8 B	NS	NS	NS	2.6 B	NS	3.5 B	19.8 B	5.0 U	39,000	5.1 B	NS	NS	18.7 B	2,700 B	4.4 B	10.0 U	110,000	NS	8.2 B	7.9 B
		20-Jun-00	*	F	22.3 U	1.6 B	3.4 B	64.8 B	NS	NS	NS	1.4 J	NS	1.5 U	7.9 U	0.7 U	40,100	1.4 U	NS	NS	4.2 UJ	2,530 J	6.8	0.3 U	107,000	NS	9.5 B	7.9 B
05_DBMW67A	190	19-Sep-01		F	28.7 U	3.8 U	2.8 U	49.1 J	NS	NS	NS	11.2	NS	2.6 U	41.7 U	1.8 U	38,400	4.8 J	NS	NS	12.4 J	3,210 J	7.5 U	10.0 U	114,000	NS	11.7 J	15.1 U
		30-Sep-02		F	200 U	2.7 J	10.0 U	53.3 J	NS	NS	NS	1.1 U	NS	4.5 J	26.1 U	1.2 J	37,100	11.2 J	NS	NS	30.7 J	3,230 J	8.8	10.0 U	113,000	NS	12.9 J	366
		25-Sep-03		F	24.4 J	2.7 U	3.0 U	40.9 J	NS	NS	NS	6.6 U	NS	4.6 U	110.0 U	2.4 J	33,900	5.9 J	NS	NS	181.0 J	3,110 J	10.9	2.0 U	113,000	NS	11.2 J	112.0 J
		30-Sep-04		F	24.3 U	3.1 UJ	2.1 U	35.5 U	NS	NS	NS	3.8 U	NS	3.1 UJ	67.2 J	1.2 U	33,400	12.7 U	NS	NS	318.0	2,490 J	9.3 J	1.3 U	122,000	NS	8.8 U	225.0
		20-Sep-05		F	21.4 U	60.0 U	3.3 J	61.1 J	5.0 U	5.0 U	142,000	2.0 J	50 U	25.0 U	89.2 U	3.0 U	39,600	1.7 U	0.076 U	26.9	3.1 U	2,460 J	5.8	10.0 U	10,800	4.1 U	11.4 J	8.2 U
		17-Mar-06	*	F	200.0 U	60.0 U	5.3 U	51.6 J	5.0 U	5.0 U	124,000	3.2 J	50 U	2.1 U	18.9 J	3.0 U	34,500	0.6 U	0.032 U	24.5	2.2 J	2,550 J	7.7	10.0 U	94,100	10 U	10 J	2.1 J
05_DGMW68	210	17-Dec-92		F	31.0 U	20.8 B	1.6 B	29.2 B	NS	NS	NS	3.7 U	NS	1.2 B	17.7 B	0.6 U	33,700	20.6	NS	NS	29.2 B	3,350 B	8.5 S	2.5 B	122,000	NS	13.6 B	2.2 U
		25-Jun-93		F	12.0 B	18.1 B	1.1 B	31.2 BE	NS	NS	NS	3.0 B	NS	0.7 U	33.4 B	0.4 U	35,800	5.1 B	NS	NS	138.0	3,400 B	9.4 B	1.2 U	120,000	NS	12.5 B	2.6 B
		9-Jan-96		F	15.2 B	2.5 U	2.8 U	24.7 B	NS	NS	NS	2.7 B	NS	1.0 U	40.7 U	1.6 U	35,100	9.2 B	NS	NS	86.8	3,220 B	9.8 U	0.7 U	114,000	NS	9.6 B	73.5
		27-Feb-96		F	200.0 U	60.0 U	10.0 U	200.0 U	NS	NS	NS	40.0	NS	25.0 U	210.0	3.0 U	42,000	15.0 U	NS	NS	110.0	4,010 J	5.0 U	10.0 U	125,000	NS	50 U	19.0 J
		27-Feb-96		UF	200.0 U	60.0 U	10.0 U	200.0 U	NS	NS	NS	263.0	NS	25.0 U	2630.0	3.0 U	42,000	37.0	NS	NS	130.0	4,050 J	5.0 U	10.0 U	126,000	NS	50 U	45.0
		15-Nov-96		F	12.6 B	60.0 U	10.0 U	30.4 B	NS	NS	NS	2.5 B	NS	3.0 B	29.0 B	1.8 B	36,500	3.0 B	NS	NS	68.6	3,650 B	5.2	10.0 U	119,000	NS	11.6 B	5.1 B
		5-Mar-97		F	6.7 B	60.0 U	2.9 B	28.9 B	NS	NS	NS	1.6 B	NS	3.6 B	17.3 B	5.0 U	38,200	1.8 B	NS	NS	54.5	3,840 B	6.4	10.0 U	119,000	NS	11.3 B	12.7 B
		1-Jul-97		F	78.5 B	3.9 B	1.4 U	33.9 B	NS	NS	NS	2.1 B	NS	3.4 B	62.5 B	0.8 U	45,000	4.0 B	NS	NS	65.7	4,620 B	8.6	0.7 U	141,000	NS	13.8 B	15.5 B
		17-Oct-98		F	33.4 U	1.4 U	1.8 B	30.0 B	NS	NS	NS	2.6 B	NS	4.5 B	14.0 U	0.8 U	39,900	2.2 B	NS	NS	63.6	3,660 B	5.3	0.7 U	120,000	NS	11.7 B	12.2 B
		20-Jun-00	*	F	33.5 U	1.4 U	1.6 B	29.0 B	NS	NS	NS	5.1 J	NS	1.5 U	19.3 U	0.7 U	33,600	8.8 B	NS	NS	253.0	3,460 B	9.4	0.3 U	84,400	NS	11.1 B	6.0 B
05_DGMW68A	186	20-Sep-01		F	28.3 U	6.2 U	3.5 U	25.3 B	NS	NS	NS	1.9 B	NS	2.3 U	9.0 U	2.2 U	36,300	3.7 B	NS	NS	6.5 U	3,340 J	5.7 U	0.3 U	117,000	NS	11.7 B	37.7
		27-Sep-02		F	200.0 U	60.0 U	10.0 U	32.5 J	NS	NS	NS	2.3 U	NS	6.3 J	54.4 U	3.0 U	34,100	4.6 U	NS	NS	11.8 J	3,040 J	6.7 U	10.0 U	110,000	NS	12.1 J	317
		18-Sep-03		F	20.9 U	2.7 J	10.0 U	24.1 J	NS	NS	NS	25.3	NS	3.3 U	130.0	2.0 J	34,200	6.1 J	NS	NS	27.6 J	2,930 J	11.1 U	0.9 U	107,000	NS	11.2 J	267.0
		30-Sep-04		F	51.0 U	5.7 U	2.1 U	24.2 U	NS	NS	NS	6 B	NS	3.0 U	66.4 B	1.2 U	33,300	5.7 U	NS	NS	11.5 U	2,310 J	7.8 J	2.8 U	114,000	NS	12 U	214.0
		8-Sep-05		F	34.7 U	60.0 U	10.0 U	28.0 U	5.0 U	5.0 U	129,000	3.0 J	50 U	2.6 U	21.6 U	3.0 U	36,600	3.3 U	0.35	37.2	14.0 J	3,320 J	9.4	10.0 U	112,000	3.1 U	12.1 J	79.7
		16-Mar-06	*	F	32.4 J	60.0 U	4.6 U	24.7 J	5.0 U	5.0 U	118,000	3.8 J	50 U	9.1 J	51.8 J	3.0 U	33,100	5.2 J	0.089 U	36.6	6.1 J	3,150 J	9.0	10.0 U	102,000	10 U	11.4 J	705.0
05NEW1	203	28-Dec-95		F	11.3 U	2.5 U	2.8 U	91.2 B	NS	NS	NS	7.0 B	NS	1.8 B	145.0	1.6 U	31,400	65.1	NS	NS	201	3,740 B	9.8	0.7 U	102,000	NS	9.8 B	5.0 U
		13-Nov-96	*	F	28.5 B	60.0 U	2.4 B	136.0 B	NS	NS	NS	4.8 B	NS	2.6 B	39.7 B	0.7 B	33,500	73.6	NS	NS	444	3,600 B	6.4	10.0 U	103,000	NS	9.4 B	6.7 B
		13-Mar-97	*	F	200.0 U	60.0 U	10.0 U	109.0 B	NS	NS	NS	9.3 B	NS	13.1 B	60.6 B	5.0 U	29,500	67.5	NS	NS	414	3,600 B	8.8	10.0 U	95,400	NS	6.4 B	7.4 B
		9-Jul-97	*	F	14.2 B	1.3 U	1.4 U	121.0 B	NS	NS	NS	7.0 B	NS	1.8 U	25.7 B	0.8 U	34,200	83.9	NS	NS	562	3,310 B	11	0.7 U	102,000	NS	7.1 B	16.3 B
		9-Jul-97	*	F	18.8 B	2.4 B	1.4 U	125.0 B	NS	NS	NS	7.1 B	NS	2.0 B	27.4 B	0.8 U	35,000	87.6	NS	NS	586	3,360 B	12.4	0.7 U	107,000	NS	7.4 B	14.7 B
		22-Oct-97	*	F	33.4 U	1.4 U	1.2 U	124.0 B	NS	NS	NS	8.8 B	NS	4.5 B	14.0 U	1.4 B	34,900	107	NS	NS	693	3,520 B	7.8	0.7 U	103,000	NS	5.8 B	6.2 B
		19-Jun-00	*	F	109.0 B	2.1 B	1.0 B	134.0 B	NS	NS	NS	8.2 J	NS	4.4 U	123.0 U	0.7 U	37,400	59.2 U	NS	NS	501	3,950 B	8.6	0.3 U	113,000	NS	8.0 B	9.1 B
		19-Sep-01	*	F	37.5 U	6.0 U	2.4 U	130 J	NS	NS	NS	9.6 J	NS	25.0 U	47.3 U	1.3 U	36,600	40.3	NS	NS	383	3,860 J	7.5 U	10.0 U	111,000	NS	8.9 J	9.6 U
		19-Sep-02	*	F	200 U	4.0 U	10.0 U	131 J	NS	NS	NS	4.2 J	NS	25.0 U	9.4 U	3.0 U	36,400	23.9	NS	NS	227	3,390 J	11.5 U	10.0 U	105,000	NS	9.5 U	4.0 J
		17-Sep-03	*	F	36.3 J	60.0 U	10.0 U	130.0 J	NS	NS	NS	6.8 J	NS	5.1 U	66.5 U	1.1 J	35,500	33.5	NS	NS	274	3,370 J	9.6 U	1.2 U	107,000	NS	9.8 J	20.2
		16-Sep-04	*	F	14.6 B	2.2 U	7.9 U	128.0 B	NS	NS	NS	4.8 B	NS	3.3 U	58.7 B	0.9 U	33,700	24.5	NS	NS	190 J	3,200 B	3.6 J	0.8 U	101,000	NS	10.6 B	9.9 U
		23-Sep-05	*	F	24.0 U	60.0 U	4.1 J	148.0 J	5.0 U	5.0 U	149,000	5.7 J	0.54 UJ	1.5 UJ	23.0 UJ	3.0 U	42,200	13.5 J	0.2 UJ	65.2	115.0	3,630 J	9.4 J	10.0 U	127,000	6.4 UJ	14.1 J	1.3 UJ
		17-Mar-06	*	F	200.0 U	60.0 U	8.8 U	118.0 J	5.0 U	5.0 U	121,000	4.8 J	50 U	1.4 U	22.1 J	1.2 J	34,100	7.3 J	0.036 U	49.3	75.2	3,860 J	10.2	10.0 U	103,000	4.8 J	11.2 J	3.7 J

Table 8 (continued)
Metals Analyses
Former MCAS El Toro, California

TARGET ANALYTE LIST METALS AND REGULATORY STANDARDS — All Results in Micrograms per Liter (ug/L)

Station ID	Base Screen Depth (ft bgs)	Sample Date - Type		Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc
				50	6	10	2000	4	5	NE	100	NE	1000	300	15	NE	50	2	NE	100	NE	50	100	NE	2	NE	5000
05-UGMW27A	190	24-Sep-01	F	**51.6 J**	4.8 J	2.1 J	87.6 J	NS	NS	NS	2.8 J	NS	4.4 J	50.1 J	3.0 U	31,900	7.0 J	NS	NS	3.9 J	2,500 J	7.7	10.0 U	118,000	NS	11.7 J	30.2
		26-Sep-02	F	21.2 UJ	60.0 U	10.0 U	102 J	NS	NS	NS	2.5 J	NS	6.2 U	38.1 UJ	3.0 U	35,400	4.3 U	NS	NS	7.2 J	2,560 J	10.5 UJ	10.0 U	132,000	NS	12.0 J	793
17_DGMW82	255	8-Feb-93	F	40.5 B	12.1 U	5.6 B	30.8 BE	NS	NS	NS	3.7 U	NS	3.8 B	2.3 U	0.6 U	32,400	**51.3 U**	NS	NS	7.7 U	5,830		2.1 U	124,000	NS	31.4	31.4
		3-Jun-93	F	21.8 B	9.0 U	6.1 BWN	26.4 B	NS	NS	NS	2.9 U	NS	0.7 U	9.0 B	0.4 U	32,600	**115 U**	NS	NS	7.1 U	5,710	7.0 U	1.2 U	139,000	NS	3.7 B	3.7 B
		3-Jun-93	F	13.6 B	9.0 U	5.7 BN	25.8 B	NS	NS	NS	2.9 U	NS	0.7 U	8.2 U	0.4 U	33,200	**126 B**	NS	NS	10.1 B	5,830	7.0 U	1.2 U	135,000	NS	3.5 B	3.5 B
		6-Dec-95	F	14.1 U	2.2 U	5.0 B	23.4 B	NS	NS	NS	0.9 J	NS	0.7 U	89.8 J	1.5 U	25,100	16.4 J	NS	NS	14.5 J	4,780 B	3.7 U	0.8 U	146,000	NS	7.3 UJ	7.3 UJ
		9-Feb-96	F	200 U	60.0 U	10.0 U	200.0 U	NS	NS	NS	10.0 U	NS	25.0 U	100.0 U	3.0 U	26,000	18 U	NS	NS	40.0 U	4,310 J	5.0 U	10.0 U	151,000	NS	40.0	40.0
		9-Feb-96	UF	200 U	60.0 U	10.0 U	200.0 U	NS	NS	NS	38.0	NS	29.0	**4,370**	**29**	28,000	15.0 U	NS	NS	51	4,450 J	5.0 U	10.0 U	149,000	NS	120.0	120.0
		20-Nov-96	F	10.2 B	60.0 U	3.4 B	26.0 B	NS	NS	NS	10.0 U	NS	25.0 U	100.0 U	5.0 U	25,100	2.5 B	NS	NS	33.4 B	5,000	5.0 U	10.0 U	138,000	NS	22.5	22.5
		1-Apr-97	F	200 U	60.0 U	9.8 B	35.1 B	NS	NS	NS	10.0 U	NS	7.8 B	38.2 B	5.0 U	23,100	3.6 B	NS	NS	28.4 B	4,920 B	4.8 B	10.0 U	136,000	NS	32.8	32.8
		20-Sep-01	* F	39.5 U	5.4 U	2.1 U	36.3 J	NS	NS	NS	8.8 J	NS	2.0 U	158	1.5 U	25,700	21.6	NS	NS	**845**	4,450 J	8.0 U	10.0 U	135,000	NS	6.3 J	37.8
		19-Sep-02	* F	200 U	6.2 U	4.4 U	38.9 J	NS	NS	NS	11.2	NS	2.8 J	**461**	3.0 U	27,300	6.8 J	NS	NS	**806**	4,190 J	11.3 U	10.0 U	127,000	NS	6.4 J	11.9 J
		29-Sep-03	* F	33.3 J	3.1 U	10.0 U	38.2 J	NS	NS	NS	2.6 J	NS	4.2 U	**59 U**	5.2	27,200	6.3 J	NS	NS	**767 J**	4,300 J	10.5	1.4 U	124,000	NS	4.8 J	34.4 J
		21-Sep-04	* F	10 U	2.2 U	9.0 U	42.6 B	NS	NS	NS	2.2 B	NS	2.4 U	**46.2 B**	0.9 U	29,100	5.1 U	NS	NS	**708 J**	4,410 B	9.1 J	0.8 U	125,000	NS	6.3 U	8.4 U
		22-Sep-05	* F	27.0 U	60.0 U	4.2 J	50.8 J	5.0 U	5.0 U	94,800	2.3 J	5.5 U	1.9 U	42.8 U	3.0 U	31,600	**82.7**	0.1 UJ	29.4	**392.0**	4,890 J	5.0 U	10.0 U	134,000	2.9 U	8.1 J	13.0 J
		22-Mar-06	* F	20.2 J	60.0 U	3.6 U	41.5 J	5.0 U	5.0 U	91,100	2.7 J	2.5 J	4.8 J	56.3 J	3.0 U	30,300	16.5	0.056 U	25.5	**416.0**	4,340 J	10.3	10.0 U	131,000	4.1 U	6.3 J	10.3 J
17NEW1	226	12-Jan-96	F	11.7 B	2.5 U	6.7 B	39 B	NS	NS	NS	2.8 B	NS	1.0 U	41.9 B	1.6 U	23,500	**87.7**	NS	NS	**197**	2,870 B	15.1	0.7 U	46,200	NS	17.5 B	4.6 B
		20-Nov-96	* F	10.5 B	2.6 B	3.7 B	107 B	NS	NS	NS	2.4 B	NS	4.4 B	100.0 U	1.2 B	20,800	39.1	NS	NS	**1220**	1,960 B	5.0 U	10.0 U	43,000	NS	12.3 B	11.3 B
		24-Mar-97	* F	10.7 B	60.0 U	2.3 B	117 B	NS	NS	NS	4.1 B	NS	2.4 B	30.9 B	5.0 U	19,200	36.6	NS	NS	**1140**	2,160 B	9.4	10.0 U	38,900	NS	11.4 B	13.2 B
		22-Jun-00	* F	30.9 U	2.7 B	2.7 B	83.7 B	NS	NS	NS	3.8 J	NS	1.5 U	59.2 U	0.7 U	19,600	13.9 B	NS	NS	**917**	3,920 B	5.1	0.3 U	54,800	NS	6.6 B	14.1 B
		20-Sep-01	* F	32.2 U	7.7 U	3.4 J	192 J	NS	NS	NS	6.9 J	NS	25.0 U	53.0 U	1.4 U	31,900	27	NS	NS	**761**	3,140 J	6.6 U	10.0 U	73,600	NS	13.4 J	15.7 U
		19-Sep-02	* F	200 U	3.4 U	3.7 U	205	NS	NS	NS	4.2 J	NS	25.0 U	8.0 U	3.0 U	38,100	22.8	NS	NS	**595**	3,130 J	11.1 U	10.0 U	86,500	NS	14.5 J	13.4 J
		29-Sep-03	* F	46.6 J	4.9 U	1.8 U	110 J	NS	NS	NS	10.8 J	NS	4.3 U	113.0 U	6.0	23,800	20.2	NS	NS	**810 J**	2,800 J	5.2 U	2.0 U	75,800	NS	12.4 J	40.3
		21-Sep-04	* F	14.1 B	2.2 U	7.7 U	116 B	NS	NS	NS	5.1 B	NS	1.7 U	47.9 B	0.9 U	24,800	16.3	NS	NS	**815 J**	2,740 B	5.2 J	0.8 U	71,100	NS	12.3 B	8.0 U
		22-Sep-05	* F	37.1 U	60.0 U	10.0 U	169.0 J	5.0 U	5.0 U	181,000	4.1 J	1.5 U	0.81 U	6.5 U	3.0 U	48,700	20.2	0.21 UJ	13.6 U	**2330.0**	3,380 J	7.8	10.0 U	80,200	6.1 U	8.1 J	19.0 J
		20-Mar-06	* F	200.0 U	60.0 U	2.0 U	155.0 J	5.0 U	5.0 U	173,000	4.8 J	50 U	25.00 U	28.6 J	3.0 U	46,400	18.9	0.16 U	9.1	**2070.0**	3,120 J	8.9	10.0 U	70,600	4.4 U	6.5 J	13.3 J

Notes:
1) Sample type: F = filtered sample, UF = unfiltered sample, NA = sample type not available
   Askerisk (*) next to sample date denotes sample collected using low-flow purging procedure.
2) Abbreviations: MCAS = Marine Corps Air Station; Data Qualification Flags: J = The associated value is an estimated quantity.
   U = The material was analyzed for, but was not detected above the level of the associated value.
   B = Reported value is less than the contract required detection limit, but greater than the instrument detection limit (IDL).
   NE = None Established
   Data qualifiers for pre-1996 analytical results are presented herein as reported by previous contractors without accompanying explanation.
3) Regulatory standards in ug/L are listed at the top of each individual metal column.
   Metals with Federal Maximum Contaminant Level (MCL): antimony, arsenic, beryllium, cadmium, mercury, nickel, selenium, and thallium.
   Metals with Federal Secondary MCL: aluminum, copper, iron, manganese, and zinc.
   Metals with State MCL: barium, chromium, and silver.
   USEPA Action Level for lead.
4) **BOLD Result** = Result exceeds regulatory standard
   Bold Station ID = Well Sampled during Round 23

Table 9
Perchlorate Analyses
Former MCAS El Toro, California

Station ID	Well Completion	Well Type	Screen Interval (feet bgs)	Sampling System	Sample Date	Perchlorate[1] 24 µg/L[2]
01_MW201	Shallow	single	27-57	bladder pump	16-Mar-05	70
					20-Sep-05	276
					22-Mar-06	376

Notes:

1) All concentrations in micrograms per liter (ug/L)
2) No State or Federal Maximum Contaminant Level (MCL) has been established for perchlorate as of the date of this report. Per the Navy's latest perchlorate sampling and management policy[3], the Department of Defense has established a level of concern for perchlorate of 24 µg/L.
3) Department of the Navy, Office of the Chief of Naval Operations. 2006. *Navy Perchlorate Sampling and Management Policy*. April 15.

Acronyms:

bgs - below ground surface

FIGURES

M60050_003938
MCAS EL TORO
SSIC NO. 5090.3.A

SENSITIVE RECORD

PORTIONS OF THIS RECORD ARE CONSIDERED SENSITIVE AND ARE NOT AVAILABLE FOR PUBLIC VIEWING

FIGURES 1 THROUGH 7

FOR ADDITIONAL INFORMATION, CONTACT:

DIANE C. SILVA, RECORDS MANAGER
NAVAL FACILITIES ENGINEERING COMMAND, SOUTHWEST
1220 PACIFIC HIGHWAY
SAN DIEGO, CA 92132

TELEPHONE: (619) 556-1280
E-MAIL: diane.silva@navy.mil

SENSITIVE

FORMER MCAS EL TORO IRVINE, CALIFORNIA		SITE VICINITY MAP	FIGURE
CDM 9444 FARNHAM STREET SAN DIEGO, CALIFORNIA 858-268-3383	DATE: 07/06 FN: 084_fig-1	Groundwater Monitoring Report, March 2006 Monitoring Round 23 Former MCAS El Toro, California	1
MODIFIED BY: J. Brown	PROJECT NO. 6218-084		

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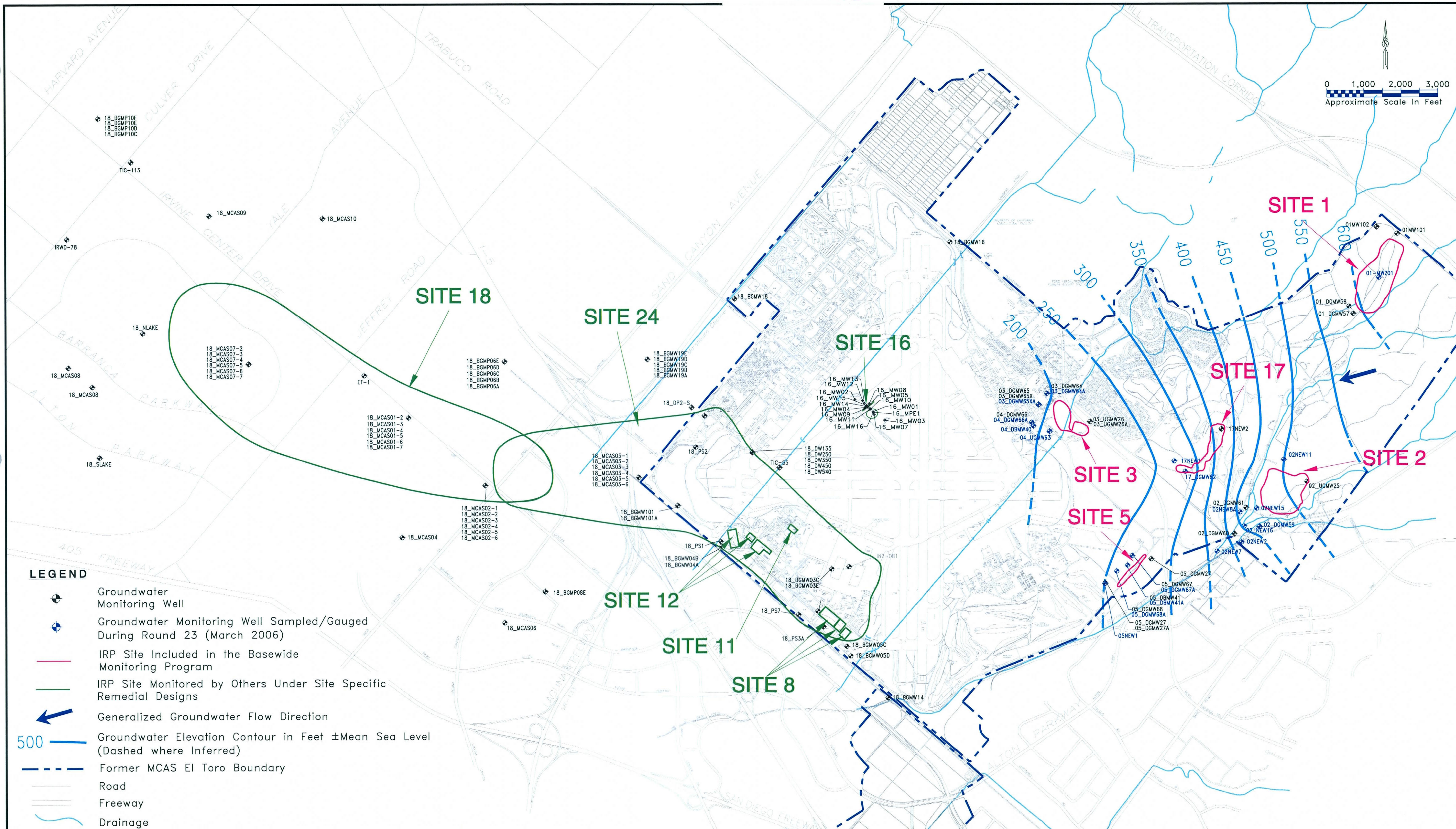
SENSITIVE

SENSITIVE



FORMER MCAS EL TORO
IRVINE, CALIFORNIA

CDM

DATE: 09/2006
FN: 084-fig_2
MODIFIED BY: J. Brown
PROJECT NO.: 6218-084

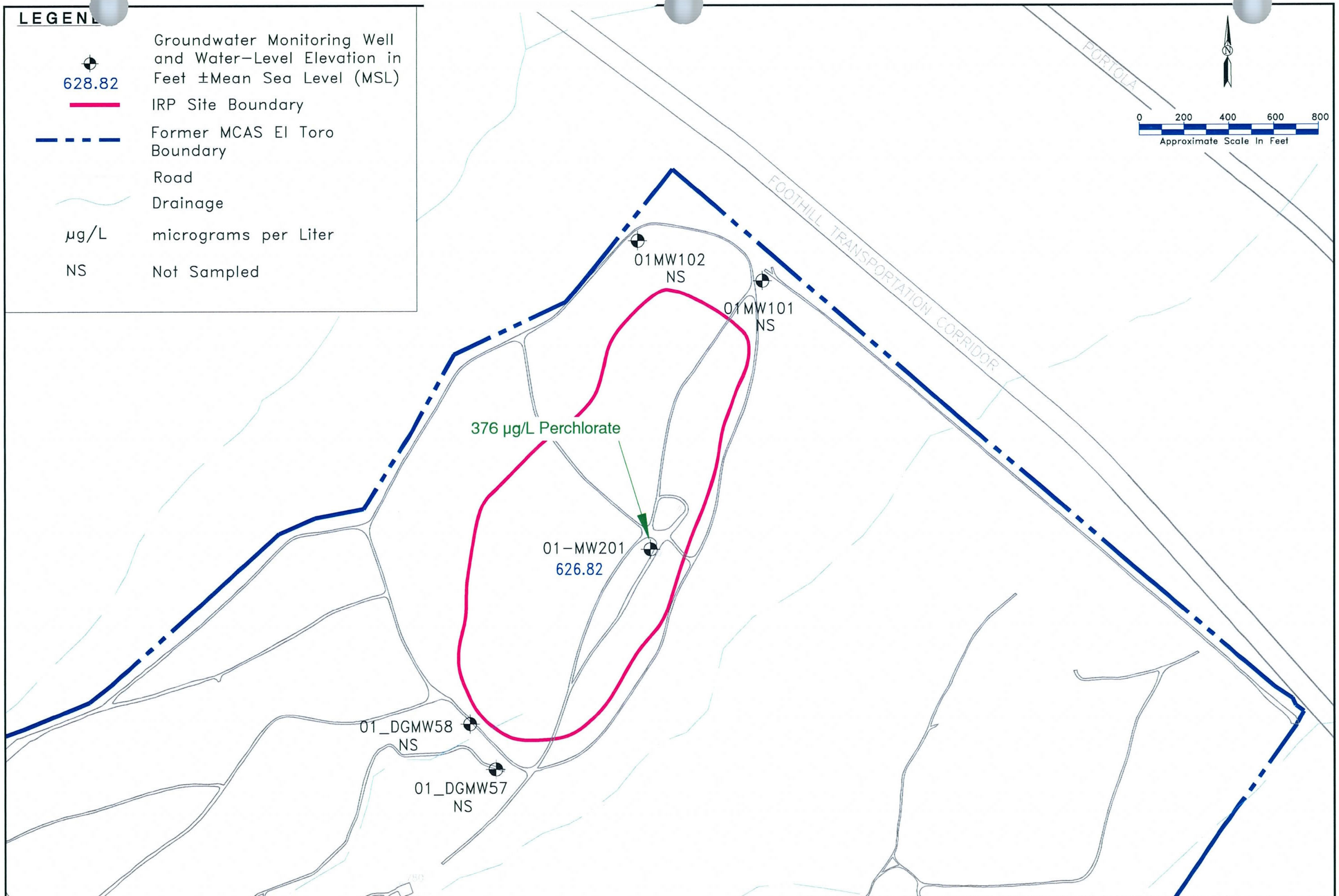
MONITORING WELL NETWORK FOR IRP SITES 1, 2, 3, 5, AND 17

Groundwater Monitoring Report,
March 2006 Monitoring
Round 23
Former MCAS El Toro, California

FIGURE
2

SENSITIVE

SENSITIVE



FORMER MCAS EL TORO
IRVINE, CALIFORNIA

CDM

DATE: 06/2006

FN: 084_FIG-3

MODIFIED BY: J. Brown

PROJECT NO.: 6218-084

IRP Site 1 Water Level and Groundwater Monitoring Results

Groundwater Monitoring Report,
March 2006 Monitoring Round 23
Former MCAS El Toro, California

FIGURE
3

SENSITIVE

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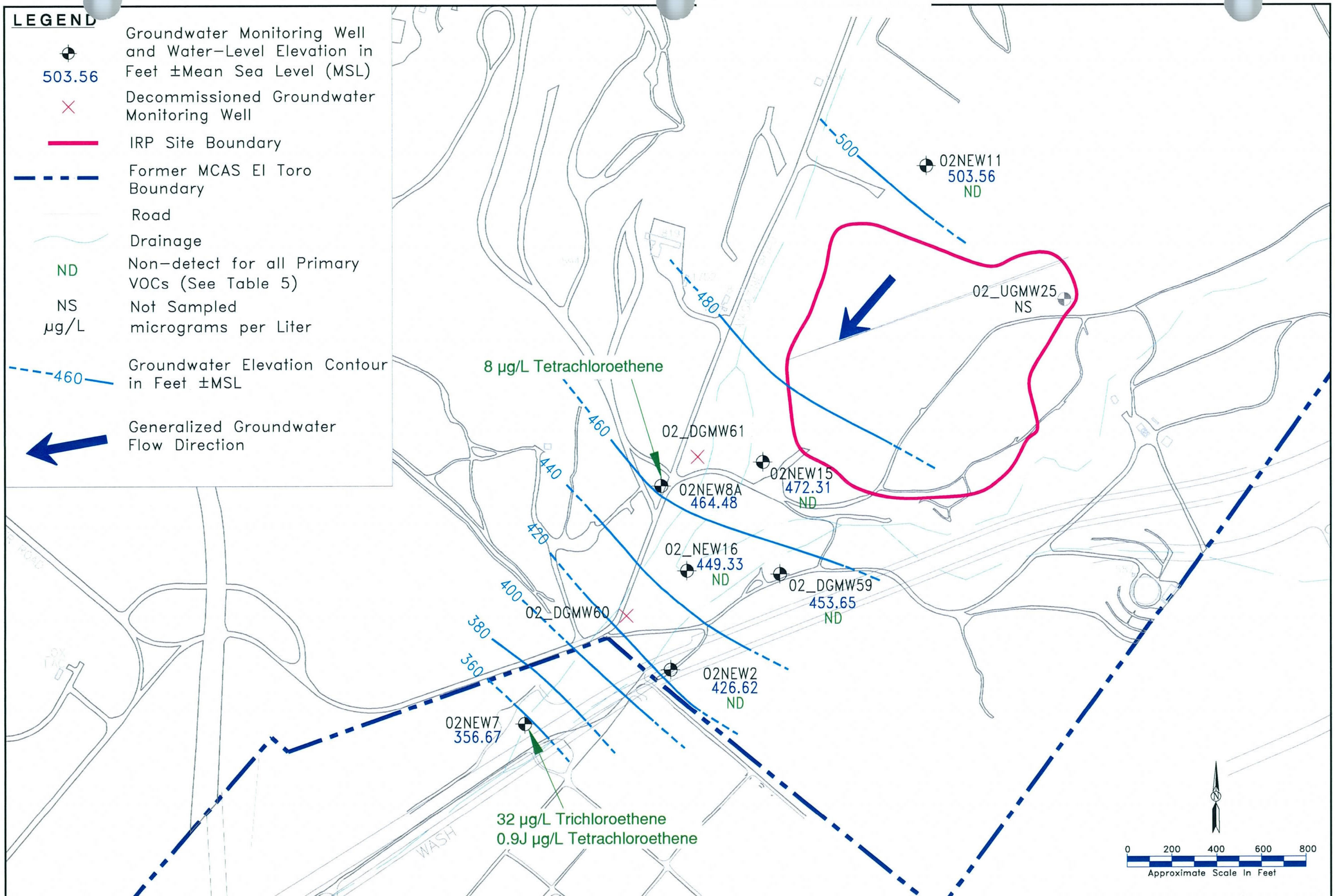
SENSITIVE



FORMER MCAS EL TORO IRVINE, CALIFORNIA		IRP Site 2 Water Level and Groundwater Monitoring Results	FIGURE
CDM	DATE: 06/2006 FN: 084_fig-4	Groundwater Monitoring Report, March 2006 Monitoring Round 23 Former MCAS El Toro, California	4
MODIFIED BY: J. Brown	PROJECT NO.: 6218-084		

SENSITIVE

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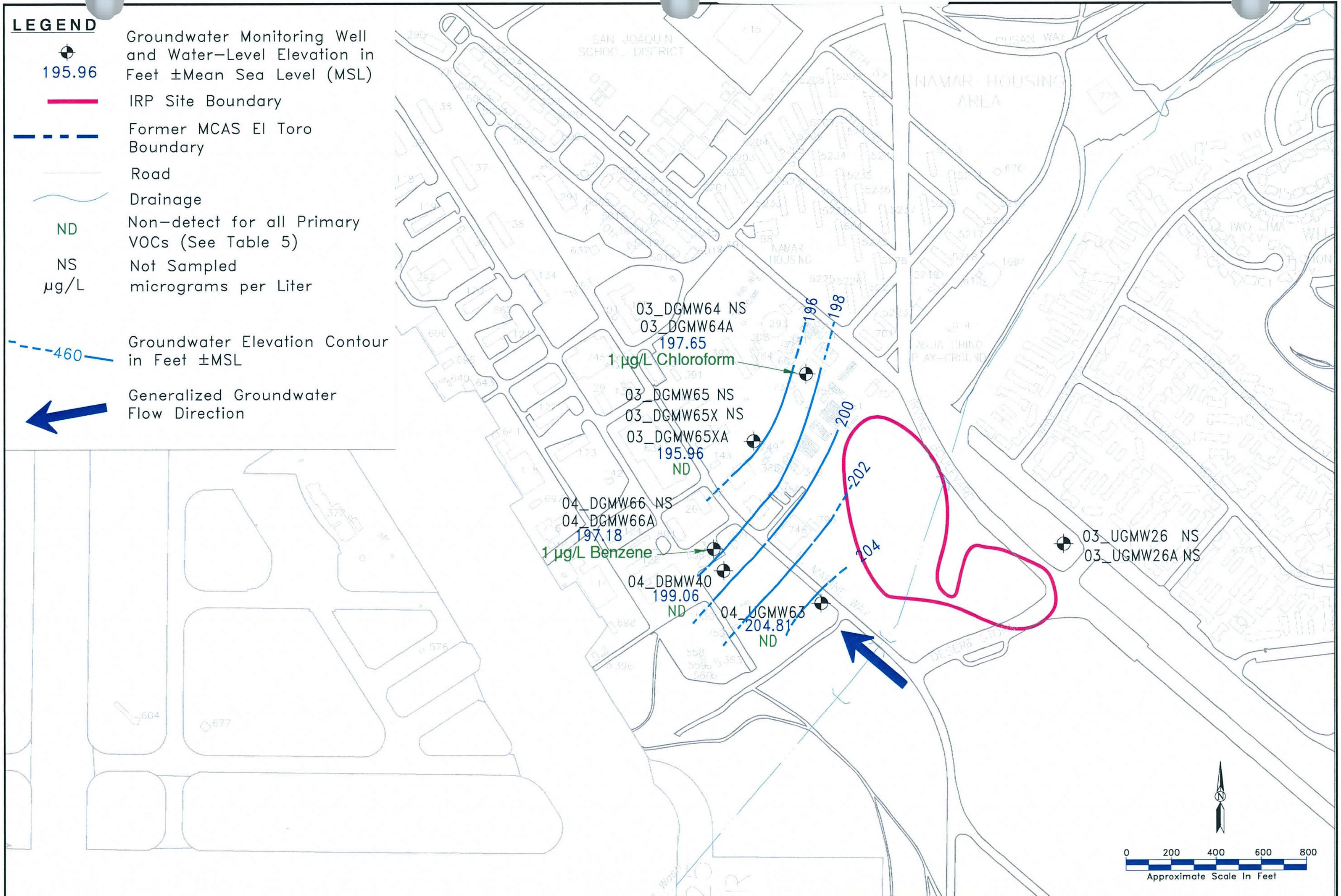


FORMER MCAS EL TORO
IRVINE, CALIFORNIA

CDM

MODIFIED BY: J. Brown

DATE: 06/2006

FN: 084_fig-5

PROJECT NO.: 6218-084

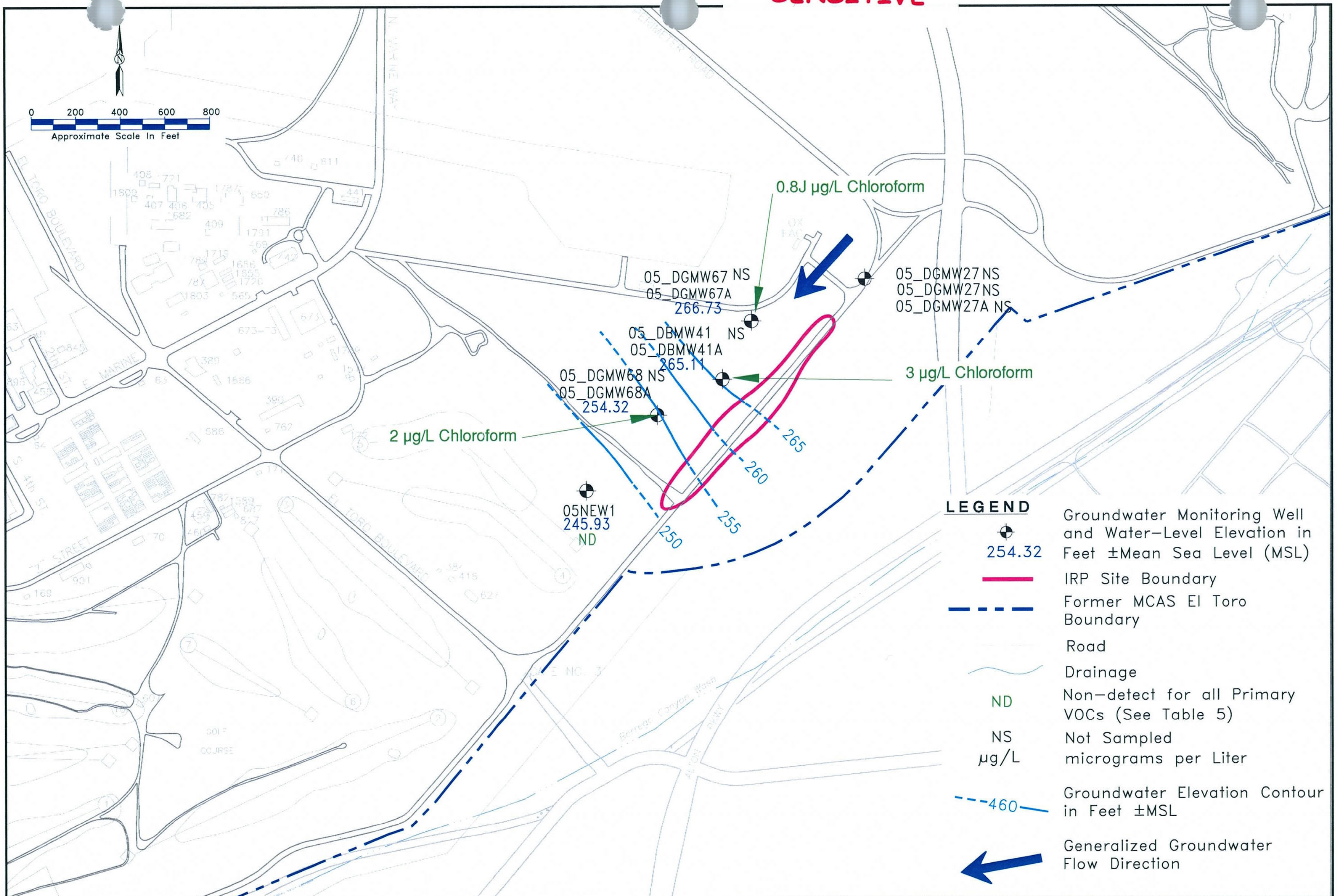
IRP Site 3 Water Level and Groundwater Monitoring Results

Groundwater Monitoring Report,
March 2006 Monitoring Round 23
Former MCAS El Toro, California

FIGURE
5

SENSITIVE

SENSITIVE



FORMER MCAS EL TORO
IRVINE, CALIFORNIA

CDM

DATE: 06/2006

FN: 084_fig-6

MODIFIED BY: J. Brown

PROJECT NO.: 6218-084

IRP Site 5 Water Level and Groundwater Monitoring Results

Groundwater Monitoring Report
March 2006 Monitoring Round 23
Former MCAS El Toro, California

FIGURE
6

SENSITIVE

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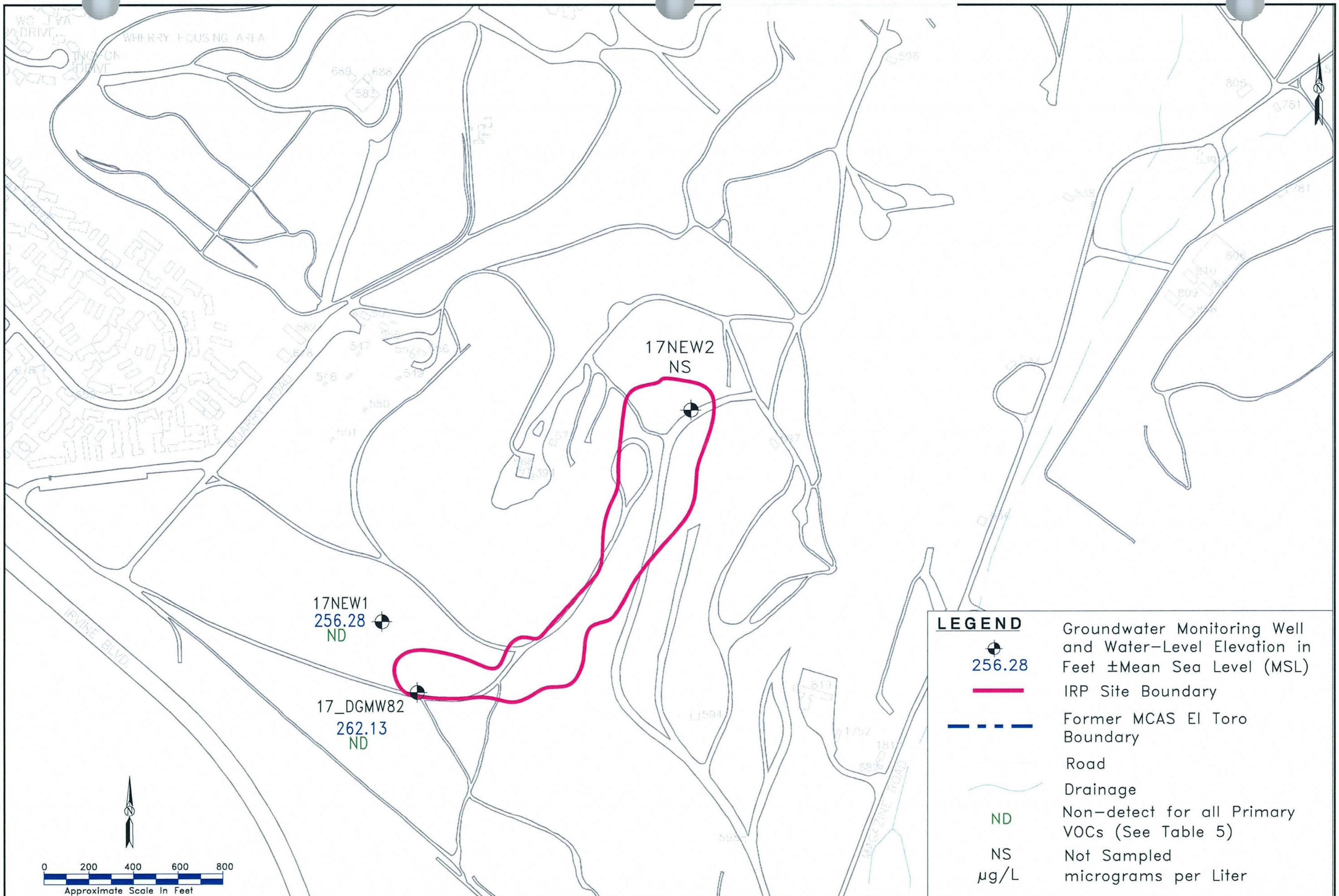
SENSITIVE



FORMER MCAS EL TORO
IRVINE, CALIFORNIA

CDM

DATE: 06/2006

FN: 084_FIG-7

MODIFIED BY: J. Brown

PROJECT NO.: 6218-084

IRP Site 17 Water Level and Groundwater Monitoring Results

Groundwater Monitoring Report,
March 2006 Monitoring Round 23
Former MCAS El Toro, California

FIGURE
7

SENSITIVE

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Appendix A

Quality Assurance/Quality Control Summary

Appendix A
Quality Assurance /Quality Control Summary

The groundwater sampling and analyses activities for the March 2006 sampling Round 23 were performed according to guidance and quality assurance/quality control (QA/QC) procedures described in the amended *Final Sampling and Analysis Plan* (SAP) and the amended *Final Quality Assurance Project Plan* (QAPP) prepared for the Marine Corps Air Station (MCAS) El Toro *Groundwater Monitoring Planning Documents* (CDM 1996) and the *Work Plan Addendum for Groundwater Monitoring MCAS El Toro* (CDM 2000). The collection of field data was performed following the SAP and Standard Operating Procedures (SOPs) provided in the QAPP. The laboratory analyses were performed according to analytical methods, detection limits, and QA/QC procedures described in these documents. This section summarizes the performance of the field and analytical procedures, data quality assessment, and data validation activities.

During the March 2006 sampling round, groundwater samples were collected from a total of 19 monitoring wells. All samples were analyzed for volatile organic compounds (VOCs). Samples from selected monitoring wells were also analyzed for radionuclides, metals, perchlorates, and general chemistry parameters.

During field sampling, the following QA/QC samples were collected and analyzed: two field duplicate samples and one matrix spike (MS)/matrix spike duplicate (MSD) sample. In addition, eight trip blank samples were analyzed for VOCs during Round 23. The results of QC samples are summarized below. Refer to the laboratory reports and the data validation reports in Appendix B for complete results.

A.1 Deviations from Sampling and Analysis Plan and Quality Assurance Project Plan

No deviations occurred from the above referenced documents for the March 2006 monitoring round.

A.2 Quality Control Procedures

Data verification, laboratory QC, and field QC samples used for this project are identified below.

A.2.1 Data Verification

Data collected were subjected to the data verification process. Data verification includes proof-reading and editing hard-copy data reports to assure that data correctly represents the analytical measurement. In general, verification identifies nontechnical errors in the data package that can be corrected (e.g., typographical errors). Data verification also includes verifying the sample identifiers on laboratory reports (hard copy) match those on the chain-of-custody record.

A.2.2 Laboratory QC Samples

Laboratory QC samples are used to:

- Verify that procedures, such as sample handling, storage, and preparation, are not introducing variables into the sampling chain that could render the validity of samples questionable; and
- Assess data quality in terms of precision and accuracy.

Quality control samples are regularly prepared in the laboratory so that all phases of the sampling process are monitored. The types of laboratory QC samples prepared during the analysis of water samples from the field activities are discussed below.

A.2.2.1 Method Blanks

One method blank was analyzed per batch of samples (not greater than 20 samples). The method blank was processed following the same preparatory and analytical procedures as the field-collected samples. These QC samples were used to detect the presence and magnitude of contaminants or other anomalies resulting from the sample preparation and analytical procedures.

A.2.2.2 Matrix Spikes/Matrix Spike Duplicates

At a minimum, one MS/MSD pair was prepared and analyzed for every 20 samples for organic analyses. The MS/MSD samples were prepared by spiking a known amount of certain analytes of interest for each method into a sample of the matrix. The spiked samples were then carried through the same procedures as the unspiked field-collected samples. The percent recoveries of the spiked compounds were used as an indication of the accuracy and appropriateness of the methods for the matrix. The precision of the methods was also assessed by calculating and evaluating the relative percent difference (RPD) between the results of the MS and MSD.

A.2.2.3 Surrogates

Surrogate compounds (artificial compounds with similar chemical properties and behavior to the compounds of interest) were added to each sample analyzed for applicable organic analytical methods. The percent recoveries of these spiked surrogate compounds were used to assess the accuracy of sample preparation and analysis procedures.

A.2.3 Field QC Samples

Field QC samples were collected to evaluate the ambient sampling conditions, the thoroughness of the decontamination procedures, and the reproducibility of the field sampling techniques.

Field Duplicate Samples: During this sampling round, field duplicate samples were collected at two of the nineteen monitoring wells (03_DGMW65XA and 02NEW7). Field duplicate results were reviewed as part of the data validation activity performed during this sampling round. RPDs were within acceptable range for duplicate samples 03_DGMW65XA and 02NEW7; no data qualifications were assigned. For additional information on the duplicate samples, see the data validation case narratives in Appendix B.

Trip Blank Samples: Trip blank samples were provided by the subcontract laboratory, Applied Physics and Chemistry Laboratory (APCL), and were included with each sample shipment for VOC analysis. A total of eight trip blanks were analyzed in this sampling round. Contaminants were not detected in any Round 23 trip blank sample; data was not qualified. For additional information on the trip blanks, see the data validation case narratives in Appendix B.

A.3 Data Quality Assessment

A.3.1 General Data Review

The field and laboratory data collected during the current sampling round have been reviewed according to the criteria described in the QAPP (CDM 1996). The laboratory hard-copy analytical reports and case narratives were reviewed to verify correct sample designation, identification, and chain-of-custody records and to assure that analytical method, holding time, and detection limit requirements were met.

The water level and field parameter measurements collected during Round 23 were reviewed and verified from field sampling records and compared to the field data collected during the prior sampling rounds. Section 3.2.6 provides a discussion of field parameter data.

A.3.2 Laboratory Data Validation

The subcontract laboratory, APCL, prepared Level D analytical data packages for all groundwater sample analyses performed. Laboratory Data Consultants performed independent data validation. Data validation was performed following NAVFAC's Environmental Work Instruction #1 (NAVFAC 2001). The data validation guidelines were supplemented by the EPA guidance document for data validation entitled *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (EPA 2004), where applicable.

The data validation effort included detailed review of laboratory data packages for selected sample delivery groups (SDGs) for each of the analytical parameters/methods performed. The objectives used to select the SDGs for validation included (1) to confirm and verify new constituent detection or anomalous results; (2) to target SDGs that include field QC sample results (e.g., field duplicates, equipment rinsates) as much as possible; and (3) to select individual SDGs that are representative of the full duration of the sampling round.

The results of the Round 23 data validation are presented in Data Validation Reports (DVRs) included as Appendix B of this report. The DVRs consist of six separate reports for VOCs, four reports for metals, four reports for general chemistry, two reports for gross alpha beta, two reports for TPH as gasoline, two reports for TPH as diesel, and one report for perchlorates.

For the selected sample results reviewed, the project goals for precision, accuracy, representativeness, completeness, and comparability, as defined in the QAPP, were evaluated (CDM 1996). Except as noted below, the data validation indicates that the analytical data obtained during this sampling round are considered to be usable for the intended purposes of monitoring groundwater quality.

A summary of the data validation and qualifications identified in the DVRs are provided below.

A.3.2.1 Volatile Organic Compounds

The following are the results of data validation performed for VOCs:

- Initial calibration for all seven SDGs were within acceptable percent relative standard deviation limits. No qualifications were made;
- The continuing calibration was outside of criteria for 1,2-dichloropropane, chloroethane, and 2-butanone in four SDGs; dichlorodifluoromethane in two SDGs; 2-hexane in two SDGs; carbon tetrachloride in three SDGs; disulfide in three SDGs; and trichloroethane, 1,3-dichlorobenzene, and 1-1-dichloroethane in one SDG. This qualified all related detects as estimated ("J") and non-detect estimated value ("UJ") for all non-detects;
- MS/MSD results were within RPD were within QC limits except in one SDG.

The data is considered acceptable for use as it was intended based on the data validation process. Data flags were placed on results where applicable (as described above). In the case where there was more than one result for an individual sample (if dilution was required), the least technically acceptable result was rejected (i.e., the result from the diluted sample except for the analyte that necessitated the sample to be diluted). Rejecting the duplicate results produced one complete data set for each sample.

A.3.2.2 Gross Alpha/Beta

One SDG for gross alpha/beta had detections of alpha in samples, which resulted in associated samples being qualified as estimated (J) results. No data were rejected.

A.3.2.3 Metals

Four SDGs for metals analysis were validated. The following summarizes results of the data validation performed for metals:

- No data were rejected;
- Method blanks had contaminants in all four SDGs, which flagged a number of detected analytes as non-detected ("UJ"); and
- Duplicates were not qualified.

A.3.2.4 General Chemistry

Wet chemistry data included the following analyses: alkalinity, chloride, nitrate, nitrite, total dissolved solids, sulfide, sulfate, total organic carbon, and phosphorous. No data were rejected. Data was not flagged or qualified.

A.3.2.5 Perchlorates

No data were rejected or qualified.

A.3.3 Field Parameter Measurements

The groundwater field parameters collected during Round 23 are listed in Table 2. Overall, the field parameters collected are consistent with the expected range of values for groundwater conditions based on previous results at the former MCAS El Toro.

A.4 QC Evaluation of the Analytical Data

This section presents the results of the internal evaluation of both field and laboratory QC checks. Data quality is assessed against established data quality objectives. The evaluation of the validated data sets compared the objective versus the actual data results through the use of the precision, accuracy, representativeness, completeness, and comparability (PARCC) parameters. The data quality objectives were met for Round 23.

Precision, accuracy, and completeness goals for the major chemical analyses that were performed on samples collected from the site were those specified in the EPA CLP statement of work (SOW).

A.4.1 Precision and Accuracy

The procedures in this section are designed to assess QC data for blanks, duplicates, spikes, and surrogates. The review of these data provides information concerning the precision and accuracy measurements conducted by the laboratories and field procedures.

A.4.1.1 Laboratory Method Blanks

Arsenic in four SDGs; Copper in two SDGs; Manganese in three SDGs; Mercury in four SDGs; Thallium in three SDGs; Lead in one SDG; Cadmium in one SDG; Iron in one SDG; and Cobalt in one SDG were detected in the laboratory method blanks. All affected data points have been qualified accordingly during the data validation process.

A.4.1.2 Matrix Spikes/Matrix Spike Duplicates

MS/MSD results that were prepared and analyzed by the laboratory were within control limits accept for gross alpha in separate SDGs. All affected data points have been qualified accordingly during the data validation process.

A.4.1.3 Surrogates

Surrogate percent recoveries (%R) were within required QC limits; no qualifications were made.

A.4.2 Representativeness

Representativeness is the reliability with which a measurement or measurement system reflects the true conditions under investigation (EPA 1989). Representativeness is influenced by the number and location of the sampling points, sampling timing and frequency of monitoring efforts, and the field and laboratory sampling procedures (EPA 1989).

The representativeness of data was enhanced by the use of established field and laboratory procedures and their consistent application. Samples that were collected are considered to be representative of the location of sample collection.

A.4.3 Completeness

The completeness of the data is described as a ratio of the amount of data expected from the field program versus the amount of valid data actually received. Valid data are considered to be those data that have not been rejected (were not R-qualified either from data validation or internal data review). Completeness can be expressed by the following equation:

$$C = \frac{\text{(number of valid results)}}{\text{total number of requested results}} \times 100$$

Based on the data validation and internal review, the completeness of the sample set submitted for analysis is 100 percent. This exceeds the completeness goals set for this project.

A.4.4 Comparability

Comparability evaluates whether the reported data is comparable with similar data reported by other organizations. The comparability of the laboratory results was found to be acceptable. All samples have been analyzed by the same laboratories, using the complete list of published methods specified in the field sampling plan. All units were consistent and appropriate for the matrix sampled.

Comparability also involves comparing data to previous rounds of sampling at the same locations. Overall, results from Round 23 indicate good comparability to previous rounds.

A.5 References

CDM Federal Programs Corporation (CDM). 1996. *Amended Final Groundwater Monitoring Planning Documents for MCAS El Toro: Quality Assurance Project Plan, Sampling and Analysis Plan, Data Management Plan, Health and Safety Plan;* prepared for NAVFACSW Naval Facilities Engineering Command, October 10, 1996.

– – – 2000. *Work Plan Addendum for Groundwater Monitoring Data.* Marine Corps Air Station El Toro, California. May.

– – – 2006. *Final Remedial Design for Monitored Natural Attenuation with Institutional Controls Operable Unit 3, IRP Site 16, Crash Crew Training Pit No. 2.* Former Marine Corps Air Station El Toro, California. March.

Naval Facilities Engineering Facility (NAVFAC) Southwest. 2001. *Environmental Work Instruction #1, Data Validation for Chemical Analysis of Environmental Samples.* November.

United States Environmental Protection Agency (EPA). 2004. *Contract Laboratory Program National Functional Guidelines for Organic Data Review, EPA-540/R-94-012,* February.

Appendix B

Level D Laboratory Analytical Reports and Level IV Data Validation

Appendix B
Data Validation

This section includes data validation procedures for laboratory data generated from the groundwater sampling effort (Round 23) for groundwater monitoring at the former MCAS El Toro. The purpose of data validation is to assure that the data collected meet the data quality objectives and that the data are of sufficient quality for use for the project objectives. An index for Round 23 laboratory data validation reports is provided in Table B-1.

An independent subcontractor, Laboratory Data Consultants, Inc. performed data validation. One hundred percent of all data collected that was analyzed by a fixed-base analytical laboratory underwent data validation in accordance with Environmental Work Instruction No. 1, *Data Validation Guidelines for Chemical Analysis of Environmental Samples* (Naval Facilities Engineering Command [NAVFAC] Southwest 2001). Approximately ninety percent of the data sent for validation was subject to medium level validation criteria, and the remaining ten percent was subject to high level sampling and chemical analysis quality assurance requirements.

Data validation is a systematic process used to interpret, define, and document analytical data quality and assess whether the data quality is sufficient to support the intended use(s) of the data. Validation of a data package includes a reconstruction of sample preparation and analysis activities from the raw data and reconciliation of the raw data with the reduced results, identification of data anomalies, and qualification of data to identify data usability limitations.

The Round 23 data validation reports were reviewed and summarized by CDM project personnel to assess data suitability and usability. The results of this internal review are summarized in Appendix A.

Analytical data were qualified based on data validation reviews. For chemical data, qualifiers were assigned in accordance with *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (EPA 2004) and *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (EPA 1999). Any data that were assigned an "R" (rejected) qualifier have been deemed "unusable" and as such were not used for any purpose including, but not limited to, data interpretation, tables, and figures. Data may be rejected for noncompliance of method requirements during the course of validation, or as a result of dilutions and re-analyses by the validators in order to yield only one complete set of data for a given sample and eliminate redundant data. The intent of the latter classification is to guide data users in choosing the best analytical result when re-analyses and/or dilutions exist. A "J" qualifier indicates an estimated concentration, while a "U" qualifier indicates a result is considered undetected. Data with these qualifiers are considered usable.

Table B-1
Index for Laboratory Data Validation Reports, Round 23
MCAS El Toro

Sample Delivery Group (SDG) No.	Laboratory Data Consultants (LDC) Report No.	Sampling Date	Analytical Category (LDC Designation)	Analytical Category (CDM Designation)
06-1934	14858	3/28/06	Volatiles	VOCs
06-1875	14820	3/21-22/06	Volatiles	VOCs
06-1845	14803	3/20/06	Volatiles	VOCs
06-1896	14811	3/23/06	Volatiles	VOCs
06-1826	14798	3/17/06	Volatiles	VOCs
06-1808	14786	3/15-16/06	Volatiles	VOCs
06-1875	14820	3/21-22/06	Metals	Metals
06-1845	14803	3/20/06	Metals	Metals
06-1826	14798	3/17/06	Metals	Metals
06-1808	14786	3/15-16/06	Metals	Metals
06-1875	14820	3/21-22/06	Wet Chemistry	General Chemistry
06-1845	14803	3/20/06	Wet Chemistry	General Chemistry
06-1826	14798	3/17/06	Wet Chemistry	General Chemistry
06-1808	14786	3/15-16/06	Wet Chemistry	General Chemistry
158637	14993	3/15-22/06	Gross Alpha Beta	Gross Alpha Beta
159123	14993	3/15-22/06	Gross Alpha Beta	Gross Alpha Beta
06-1934	14858	3/28/06	TPH as Gasoline	TPH as Gasoline
06-1896	14811	3/23/06	TPH as Gasoline	TPH as Gasoline
06-1934	14858	3/28/06	TPH as Diesel	TPH as Diesel
06-1896	14811	3/23/06	TPH as Diesel	TPH as Diesel
06-1808	14786	3/15-16/06	Perchlorates	Perchlorates

Notes:
MCAS = Marine Corps Air Station
LDC = Laboratory Data Consultants
SDG = Sample Delivery Group
TPH = Total Petroleum Hydrocarbons
CDM = CDM Federal Programs Corporation
No. = Number
VOCs = Volatile Organic Compounds

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LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

CDM Federal
9444 Farnham Street, Suite 210
San Diego, CA 92123
ATTN: Mr. Michael Higman

April 10, 2006

SUBJECT: MCAS El Toro CTO 084, Data Validation

Dear Mr. Higman,

Enclosed is the final validation report and Excel qualification sheet for the fractions listed below. This SDG were received on March 30th, 2006.

LDC project# 14786:

SDG #	Fraction
06-1808	Volatiles (Method CLP SOW OLM04.2) Metals (Method CLP SOW ILM04.2) Wet Chemistry (Method EPA 300.0, 310.1, 331.0 and 160.1)

The following deliverables are submitted under this report:

- Attachment I — Sample ID Cross Reference and Data Review Level
- Attachment II — Overall Data Qualification Summary
- Attachment III — CDM Database Qualification Summary
- Enclosure I — EPA Level III ADR Outliers (including manual review outliers)
- Enclosure II — EPA Level IV DVR (manual review)

The data validation was performed in accordance to the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 and for Inorganic Data Review, October 2004. Where specific guidance is not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience. The following items were evaluated during the review:

- Holding Times
- Sample Preservation
- Cooler Temperatures
- Initial Calibration (Manual Review)
- Continuing Calibration (Manual Review)
- Blanks
- Surrogates
- Internal Standards (Manual Review)
- Matrix Spike/Matrix Spike Duplicates

- Laboratory Control Samples
- Detection and Quantitation Limits
- Field QC Samples

Please feel free to contact us if you have any questions.

Sincerely,

E Rauto

Erlinda T. Rauto
Operations Manager/Senior Chemist

Attachment I

Sample ID Cross Reference and Data Review Level

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
15-Mar-2006	05_DBMW41A-123	06-1808-10	N	3010A	CLP-Metal	III
15-Mar-2006	05_DBMW41A-123	06-1808-10	N	5030B	CLP-VOC	III
15-Mar-2006	05_DBMW41A-123	06-1808-10	N	7470A	CLP-Metal	III
15-Mar-2006	05_DBMW41A-123	06-1808-10RE	N	3010A	CLP-Metal	III
15-Mar-2006	03_DGMW64A-123	06-1808-5	N	3010A	CLP-Metal	IV
15-Mar-2006	03_DGMW64A-123	06-1808-5	N	5030B	CLP-VOC	IV
15-Mar-2006	03_DGMW64A-123	06-1808-5	N	7470A	CLP-Metal	IV
15-Mar-2006	03_DGMW64A-123	06-1808-5	N	GEN PREP	160.1	IV
15-Mar-2006	03_DGMW64A-123	06-1808-5	N	GEN PREP	300.0	IV
15-Mar-2006	03_DGMW64A-123	06-1808-5	N	GEN PREP	310.1	IV
15-Mar-2006	03_DGMW64A-123DUP	06-1808-5MD	DUP	GEN PREP	310.1	III
15-Mar-2006	03_DGMW64A-123	06-1808-5RE	N	3010A	CLP-Metal	IV
15-Mar-2006	03_DGMW65XA-123	06-1808-6	N	3010A	CLP-Metal	III
15-Mar-2006	03_DGMW65XA-123	06-1808-6	N	5030B	CLP-VOC	III
15-Mar-2006	03_DGMW65XA-123	06-1808-6	N	7470A	CLP-Metal	III
15-Mar-2006	03_DGMW65XA-123	06-1808-6	N	GEN PREP	160.1	III
15-Mar-2006	03_DGMW65XA-123	06-1808-6	N	GEN PREP	300.0	III
15-Mar-2006	03_DGMW65XA-123	06-1808-6	N	GEN PREP	310.1	III
15-Mar-2006	03_DGMW65XA-123	06-1808-6RE	N	3010A	CLP-Metal	III
15-Mar-2006	03_DGMW65XA-323	06-1808-7	FD	3010A	CLP-Metal	III
15-Mar-2006	03_DGMW65XA-323	06-1808-7	FD	5030B	CLP-VOC	III
15-Mar-2006	03_DGMW65XA-323	06-1808-7	FD	7470A	CLP-Metal	III
15-Mar-2006	03_DGMW65XA-323	06-1808-7	FD	GEN PREP	160.1	III
15-Mar-2006	03_DGMW65XA-323	06-1808-7	FD	GEN PREP	300.0	III
15-Mar-2006	03_DGMW65XA-323	06-1808-7	FD	GEN PREP	310.1	III
15-Mar-2006	03_DGMW65XA-323	06-1808-7RE	FD	3010A	CLP-Metal	III

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
16-Mar-2006	01_MW201-123	06-1808-1	N	5030B	CLP-VOC	III
16-Mar-2006	01_MW201-123	06-1808-1	N	GEN PREP	331.0	III
16-Mar-2006	01_MW201-123	06-1808-1	N	GEN PREP	M300.0	III
16-Mar-2006	05_DGMW68A-123	06-1808-11	N	3010A	CLP-Metal	III
16-Mar-2006	05_DGMW68A-123	06-1808-11	N	5030B	CLP-VOC	III
16-Mar-2006	05_DGMW68A-123	06-1808-11	N	7470A	CLP-Metal	III
16-Mar-2006	05_DGMW68A-123DUP	06-1808-11MD	DUP	3010A	CLP-Metal	III
16-Mar-2006	05_DGMW68A-123MS	06-1808-11MS	MS	3010A	CLP-Metal	III
16-Mar-2006	05_DGMW68A-123	06-1808-11RE	N	3010A	CLP-Metal	III
16-Mar-2006	BT1-923	06-1808-12	TB	5030B	CLP-VOC	III
16-Mar-2006	01_MW201-123MS	06-1808-1MS	MS	GEN PREP	331.0	III
16-Mar-2006	01_MW201-123MSD	06-1808-1MSD	MSD	GEN PREP	331.0	III
16-Mar-2006	02NEW7-123	06-1808-2	N	3010A	CLP-Metal	III
16-Mar-2006	02NEW7-123	06-1808-2	N	5030B	CLP-VOC	III
16-Mar-2006	02NEW7-123	06-1808-2	N	7470A	CLP-Metal	III
16-Mar-2006	02NEW7-123DUP	06-1808-2MD	DUP	7470A	CLP-Metal	III
16-Mar-2006	02NEW7-123MS	06-1808-2MS	MS	7470A	CLP-Metal	III
16-Mar-2006	02NEW7-123	06-1808-2RE	N	3010A	CLP-Metal	III
16-Mar-2006	02NEW7-323	06-1808-3	FD	3010A	CLP-Metal	III
16-Mar-2006	02NEW7-323	06-1808-3	FD	5030B	CLP-VOC	III
16-Mar-2006	02NEW7-323	06-1808-3	FD	7470A	CLP-Metal	III
16-Mar-2006	02NEW7-323	06-1808-3RE	FD	3010A	CLP-Metal	III
16-Mar-2006	02_NEW8A-123	06-1808-4	N	3010A	CLP-Metal	III
16-Mar-2006	02_NEW8A-123	06-1808-4	N	5030B	CLP-VOC	III
16-Mar-2006	02_NEW8A-123	06-1808-4	N	7470A	CLP-Metal	III
16-Mar-2006	02_NEW8A-123	06-1808-4RE	N	3010A	CLP-Metal	III

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
16-Mar-2006	04_DGMW66A-123	06-1808-8	N	3010A	CLP-Metal	III
16-Mar-2006	04_DGMW66A-123	06-1808-8	N	5030B	CLP-VOC	III
16-Mar-2006	04_DGMW66A-123	06-1808-8	N	7470A	CLP-Metal	III
16-Mar-2006	04_DGMW66A-123	06-1808-8RE	N	3010A	CLP-Metal	III
16-Mar-2006	04_UGMW63-123	06-1808-9	N	3010A	CLP-Metal	IV
16-Mar-2006	04_UGMW63-123	06-1808-9	N	5030B	CLP-VOC	IV
16-Mar-2006	04_UGMW63-123	06-1808-9	N	7470A	CLP-Metal	IV
16-Mar-2006	04_UGMW63-123MS	06-1808-9MS	MS	5030B	CLP-VOC	III
16-Mar-2006	04_UGMW63-123MSD	06-1808-9MSD	MSD	5030B	CLP-VOC	III
16-Mar-2006	04_UGMW63-123	06-1808-9RE	N	3010A	CLP-Metal	IV

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Attachment II

Overall Data Qualification Summary

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 61808										
CLP-Metal	02_NEW8A-123	AQ	N							
				ALUMINUM	200	21.8B		J	ug/L	
				ARSENIC	10	7.3B		U	ug/L	
				BARIUM	200	41.9B		J	ug/L	
				CHROMIUM	10	2.7B		J	ug/L	
				COPPER	25	1.5B		U	ug/L	
				IRON	100	22.2B		J	ug/L	
				MANGANESE	15	0.66B		U	ug/L	
				MERCURY	0.2	0.075B		U	ug/L	
				NICKEL	40	1.0B		J	ug/L	
				POTASSIUM	5000	1680B		J	ug/L	
				VANADIUM	50	5.0B		J	ug/L	
				ZINC	20	2.3B		J	ug/L	
CLP-Metal	02NEW7-123	AQ	N							
				ALUMINUM	200	27.8B		J	ug/L	
				ARSENIC	10	7.1B		U	ug/L	
				BARIUM	200	79.9B		J	ug/L	
				CHROMIUM	10	3.0B		J	ug/L	
				COPPER	25	3.9B		UJ	ug/L	
				IRON	100	40.4B		J	ug/L	
				MANGANESE	15	1.8B		UJ	ug/L	
				MERCURY	0.2	0.096B		UJ	ug/L	
				NICKEL	40	2.1B		J	ug/L	
				POTASSIUM	5000	1930B		J	ug/L	
				VANADIUM	50	12.6B		J	ug/L	

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 61808										
CLP-Metal	02NEW7-323	AQ	FD							
				ALUMINUM	200	200U		UJ	ug/L	
				ARSENIC	10	7.4B		U	ug/L	
				BARIUM	200	80.3B		J	ug/L	
				CHROMIUM	10	2.6B		J	ug/L	
				COPPER	25	2.4B		UJ	ug/L	
				IRON	100	29.3B		J	ug/L	
				MANGANESE	15	1.3B		UJ	ug/L	
				MERCURY	0.2	0.12B		UJ	ug/L	
				NICKEL	40	1.9B		J	ug/L	
				POTASSIUM	5000	1860B		J	ug/L	
				VANADIUM	50	12.5B		J	ug/L	
				ZINC	20	19.1B		J	ug/L	
CLP-Metal	03_DGMW64A-123	AQ	N							
				ARSENIC	10	6.2B		U	ug/L	
				BARIUM	200	29.8B		J	ug/L	
				CHROMIUM	10	7.4B		J	ug/L	
				COPPER	25	3.4B		U	ug/L	
				IRON	100	37.2B		J	ug/L	
				MANGANESE	15	11.9B		J	ug/L	
				MERCURY	0.2	0.034B		U	ug/L	
				POTASSIUM	5000	4780B		J	ug/L	
				THALLIUM	10	1.9B		J	ug/L	
				VANADIUM	50	20.0B		J	ug/L	

N = Normal Sample TB = Trip Blank
FD = Field Duplicate FB = Field Blank

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 61808										
CLP-Metal	03_DGMW65XA-123	AQ	N							
				ALUMINUM	200	25.8B		J	ug/L	
				ARSENIC	10	9.5B		U	ug/L	
				BARIUM	200	64.2B		J	ug/L	
				CHROMIUM	10	6.0B		J	ug/L	
				COBALT	50	1.0B		U	ug/L	
				COPPER	25	3,5B		U	ug/L	
				IRON	100	114		J	ug/L	
				MERCURY	0.2	0.064B		UJ	ug/L	
				POTASSIUM	5000	3840B		J	ug/L	
				THALLIUM	10	2.4B		J	ug/L	
				VANADIUM	50	41.8B		J	ug/L	
CLP-Metal	03_DGMW65XA-323	AQ	FD							
				ALUMINUM	200	25.5B		J	ug/L	
				ARSENIC	10	9.7B		U	ug/L	
				BARIUM	200	63.8B		J	ug/L	
				CHROMIUM	10	5.3B		J	ug/L	
				COBALT	50	0.85B		U	ug/L	
				COPPER	25	3.5B		U	ug/L	
				IRON	100	74.3B		J	ug/L	
				MERCURY	0.2	0.11B		UJ	ug/L	
				POTASSIUM	5000	3890B		J	ug/L	
				THALLIUM	10	2.9B		J	ug/L	
				VANADIUM	50	40.8B		J	ug/L	

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 61808										
CLP-Metal	04_DGMW66A-123	AQ	N							
				ARSENIC	10	5.9B		U	ug/L	
				BARIUM	200	74.4B		J	ug/L	
				CHROMIUM	10	4.9B		J	ug/L	
				COBALT	50	1.2B		U	ug/L	
				COPPER	25	3.8B		U	ug/L	
				MERCURY	0.2	0.026B		U	ug/L	
				SELENIUM	5	3.5B		J	ug/L	
				THALLIUM	10	2.7B		J	ug/L	
				VANADIUM	50	18.9B		J	ug/L	
CLP-Metal	04_UGMW63-123	AQ	N							
				ALUMINUM	200	19.3B		J	ug/L	
				ARSENIC	10	4.5B		U	ug/L	
				BARIUM	200	76.2B		J	ug/L	
				CHROMIUM	10	3.8B		J	ug/L	
				COBALT	50	2.1B		U	ug/L	
				COPPER	25	5.0B		U	ug/L	
				IRON	100	29.5B		J	ug/L	
				MERCURY	0.2	0.091B		U	ug/L	
				POTASSIUM	5000	3820B		J	ug/L	
				THALLIUM	10	3.0B		J	ug/L	
				VANADIUM	50	13.9B		J	ug/L	
				ZINC	20	9.3B		J	ug/L	

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 61808										
CLP-Metal	05_DBMW41A-123	AQ	N							
				ALUMINUM	200	40.6B		J	ug/L	
				ARSENIC	10	5.1B		U	ug/L	
				BARIUM	200	59.1B		J	ug/L	
				CHROMIUM	10	3.7B		J	ug/L	
				COPPER	25	4.2B		U	ug/L	
				IRON	100	43.5B		J	ug/L	
				MANGANESE	15	2.5B		U	ug/L	
				MERCURY	0.2	0.11B		U	ug/L	
				NICKEL	40	4.5B		J	ug/L	
				POTASSIUM	5000	2890B		J	ug/L	
				THALLIUM	10	2.0B		J	ug/L	
				VANADIUM	50	10.4B		J	ug/L	
CLP-Metal	05_DGMW68A-123	AQ	N							
				ALUMINUM	200	32.4B		J	ug/L	
				ARSENIC	10	4.6B		U	ug/L	
				BARIUM	200	24.7B		J	ug/L	
				CHROMIUM	10	3.8B		J	ug/L	
				COPPER	25	9.1B		J	ug/L	
				IRON	100	51.8B		J	ug/L	
				MANGANESE	15	5.2B		J	ug/L	
				MERCURY	0.2	0.089B		U	ug/L	
				NICKEL	40	6.1B		J	ug/L	
				POTASSIUM	5000	3150B		J	ug/L	
				VANADIUM	50	11.4B		J	ug/L	
CLP-VOC	01_MW201-123	AQ	N							
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				2-HEXANONE	10	10U		UJ	ug/L	
				CARBON TETRACHLORIDE	0.5	0.5U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 61808										
CLP-VOC	02_NEW8A-123	AQ	N							
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				2-HEXANONE	10	10U		UJ	ug/L	
				CARBON TETRACHLORIDE	0.5	0.5U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
CLP-VOC	02NEW7-123	AQ	N							
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				2-HEXANONE	10	10U		UJ	ug/L	
				CARBON TETRACHLORIDE	0.5	0.5U		UJ	ug/L	
				CHLOROBENZENE	1	0.4J		J	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
				TETRACHLOROETHENE	1	0.9J		J	ug/L	
				TOLUENE	1	0.4J		J	ug/L	
CLP-VOC	02NEW7-323	AQ	FD							
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				2-HEXANONE	10	10U		UJ	ug/L	
				CARBON TETRACHLORIDE	0.5	0.5U		UJ	ug/L	
				CHLOROBENZENE	1	0.4J		J	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
				TETRACHLOROETHENE	1	0.8J		J	ug/L	
				TOLUENE	1	0.4J		J	ug/L	

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 61808										
CLP-VOC	03_DGMW64A-123	AQ	N							
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				2-HEXANONE	10	10U		UJ	ug/L	
				CARBON TETRACHLORIDE	0.5	0.5U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
CLP-VOC	03_DGMW65XA-123	AQ	N							
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				2-HEXANONE	10	10U		UJ	ug/L	
				CARBON TETRACHLORIDE	0.5	0.5U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
CLP-VOC	03_DGMW65XA-323	AQ	FD							
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				CARBON TETRACHLORIDE	0.5	0.5U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
CLP-VOC	04_DGMW66A-123	AQ	N							
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				2-HEXANONE	10	10U		UJ	ug/L	
				CARBON TETRACHLORIDE	0.5	0.5U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 61808										
CLP-VOC	04_UGMW63-123	AQ	N							
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				2-HEXANONE	10	10U		UJ	ug/L	
				CARBON TETRACHLORIDE	0.5	0.5U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
CLP-VOC	05_DBMW41A-123	AQ	N							
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				2-HEXANONE	10	10U		UJ	ug/L	
				BROMODICHLOROMETHANE	1	0.5J		J	ug/L	
				CARBON TETRACHLORIDE	0.5	0.5U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
CLP-VOC	05_DGMW68A-123	AQ	N							
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				2-HEXANONE	10	10U		UJ	ug/L	
				BROMODICHLOROMETHANE	1	0.6J		J	ug/L	
				CARBON TETRACHLORIDE	0.5	0.5U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
CLP-VOC	BT1-923	AQ	TB							
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				2-HEXANONE	10	10U		UJ	ug/L	
				CARBON TETRACHLORIDE	0.5	0.5U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
				METHYLENE CHLORIDE	5	0.3J		J	ug/L	

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Attachment III

CDM Database Qualification Summary

CDM Federal Programs Corporation

Reason for Qualified Results

SDG Nos. : 61808

Project No # : 14786

Sample Del Group (SDG)	Sample ID	Test Method	CAS No.	Detected Qualifier	Non Detected Qualifier	Analyte Name	Reason
61808	01_MW201-123	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61808	01_MW201-123	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61808	01_MW201-123	CLP-VOC	591786		J	2-HEXANONE	Continuing calibration percent difference
61808	01_MW201-123	CLP-VOC	56235		J	CARBON TETRACHLORIDE	Continuing calibration percent difference
61808	01_MW201-123	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61808	01_MW201-123	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61808	02_NEW8A-123	CLP-Metal	7440382	U		ARSENIC	Present in method blank
61808	02_NEW8A-123	CLP-Metal	7440508	U		COPPER	Present in method blank
61808	02_NEW8A-123	CLP-Metal	7439965	U		MANGANESE	Present in method blank
61808	02_NEW8A-123	CLP-Metal	7439976	U		MERCURY	Present in method blank
61808	02_NEW8A-123	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61808	02_NEW8A-123	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61808	02_NEW8A-123	CLP-VOC	591786		J	2-HEXANONE	Continuing calibration percent difference
61808	02_NEW8A-123	CLP-VOC	56235		J	CARBON TETRACHLORIDE	Continuing calibration percent difference
61808	02_NEW8A-123	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61808	02_NEW8A-123	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61808	02NEW7-123	CLP-Metal	7440382	U		ARSENIC	Present in method blank
61808	02NEW7-123	CLP-Metal	7440508	U		COPPER	Present in method blank
61808	02NEW7-123	CLP-Metal	7439965	U		MANGANESE	Present in method blank
61808	02NEW7-123	CLP-Metal	7439976	U		MERCURY	Present in method blank
61808	02NEW7-123	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61808	02NEW7-123	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61808	02NEW7-123	CLP-VOC	591786		J	2-HEXANONE	Continuing calibration percent difference
61808	02NEW7-123	CLP-VOC	56235		J	CARBON TETRACHLORIDE	Continuing calibration percent difference
61808	02NEW7-123	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61808	02NEW7-123	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61808	02NEW7-323	CLP-Metal	7440382	U		ARSENIC	Present in method blank
61808	02NEW7-323	CLP-Metal	7440508	U		COPPER	Present in method blank
61808	02NEW7-323	CLP-Metal	7439965	U		MANGANESE	Present in method blank
61808	02NEW7-323	CLP-Metal	7439976	U		MERCURY	Present in method blank
61808	02NEW7-323	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61808	02NEW7-323	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference

CDM Federal Programs Corporation

Project No # : 14786

Reason for Qualified Results

SDG Nos. : 61808

Sample Del Group (SDG)	Sample ID	Test Method	CAS No.	Detected Qualifier	Non Detected Qualifier	Analyte Name	Reason
61808	02NEW7-323	CLP-VOC	591786		J	2-HEXANONE	Continuing calibration percent difference
61808	02NEW7-323	CLP-VOC	56235		J	CARBON TETRACHLORIDE	Continuing calibration percent difference
61808	02NEW7-323	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61808	02NEW7-323	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61808	03_DGMW64A-123	CLP-Metal	7440382	U		ARSENIC	Present in method blank
61808	03_DGMW64A-123	CLP-Metal	7440508	U		COPPER	Present in method blank
61808	03_DGMW64A-123	CLP-Metal	7439976	U		MERCURY	Present in method blank
61808	03_DGMW64A-123	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61808	03_DGMW64A-123	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61808	03_DGMW64A-123	CLP-VOC	591786		J	2-HEXANONE	Continuing calibration percent difference
61808	03_DGMW64A-123	CLP-VOC	56235		J	CARBON TETRACHLORIDE	Continuing calibration percent difference
61808	03_DGMW64A-123	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61808	03_DGMW64A-123	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61808	03_DGMW65XA-123	CLP-Metal	7440382	U		ARSENIC	Present in method blank
61808	03_DGMW65XA-123	CLP-Metal	7440484	U		COBALT	Present in method blank
61808	03_DGMW65XA-123	CLP-Metal	7440508	U		COPPER	Present in method blank
61808	03_DGMW65XA-123	CLP-Metal	7439976	U		MERCURY	Present in method blank
61808	03_DGMW65XA-123	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61808	03_DGMW65XA-123	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61808	03_DGMW65XA-123	CLP-VOC	591786		J	2-HEXANONE	Continuing calibration percent difference
61808	03_DGMW65XA-123	CLP-VOC	56235		J	CARBON TETRACHLORIDE	Continuing calibration percent difference
61808	03_DGMW65XA-123	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61808	03_DGMW65XA-123	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61808	03_DGMW65XA-323	CLP-Metal	7440382	U		ARSENIC	Present in method blank
61808	03_DGMW65XA-323	CLP-Metal	7440484	U		COBALT	Present in method blank
61808	03_DGMW65XA-323	CLP-Metal	7440508	U		COPPER	Present in method blank
61808	03_DGMW65XA-323	CLP-Metal	7439976	U		MERCURY	Present in method blank
61808	03_DGMW65XA-323	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61808	03_DGMW65XA-323	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61808	03_DGMW65XA-323	CLP-VOC	56235		J	CARBON TETRACHLORIDE	Continuing calibration percent difference
61808	03_DGMW65XA-323	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61808	04_DGMW66A-123	CLP-Metal	7440382	U		ARSENIC	Present in method blank

CDM Federal Programs Corporation
Reason for Qualified Results
SDG Nos. : 61808

Sample Del Group (SDG)	Sample ID	Test Method	CAS No.	Detected Qualifier	Non Detected Qualifier	Analyte Name	Reason
61808	04_DGMW66A-123	CLP-Metal	7440484	U		COBALT	Present in method blank
61808	04_DGMW66A-123	CLP-Metal	7440508	U		COPPER	Present in method blank
61808	04_DGMW66A-123	CLP-Metal	7439976	U		MERCURY	Present in method blank
61808	04_DGMW66A-123	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61808	04_DGMW66A-123	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61808	04_DGMW66A-123	CLP-VOC	591786		J	2-HEXANONE	Continuing calibration percent difference
61808	04_DGMW66A-123	CLP-VOC	56235		J	CARBON TETRACHLORIDE	Continuing calibration percent difference
61808	04_DGMW66A-123	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61808	04_DGMW66A-123	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61808	04_UGMW63-123	CLP-Metal	7440382	U		ARSENIC	Present in method blank
61808	04_UGMW63-123	CLP-Metal	7440484	U		COBALT	Present in method blank
61808	04_UGMW63-123	CLP-Metal	7440508	U		COPPER	Present in method blank
61808	04_UGMW63-123	CLP-Metal	7439976	U		MERCURY	Present in method blank
61808	04_UGMW63-123	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61808	04_UGMW63-123	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61808	04_UGMW63-123	CLP-VOC	591786		J	2-HEXANONE	Continuing calibration percent difference
61808	04_UGMW63-123	CLP-VOC	56235		J	CARBON TETRACHLORIDE	Continuing calibration percent difference
61808	04_UGMW63-123	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61808	04_UGMW63-123	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61808	05_DBMW41A-123	CLP-Metal	7440382	U		ARSENIC	Present in method blank
61808	05_DBMW41A-123	CLP-Metal	7440508	U		COPPER	Present in method blank
61808	05_DBMW41A-123	CLP-Metal	7439965	U		MANGANESE	Present in method blank
61808	05_DBMW41A-123	CLP-Metal	7439976	U		MERCURY	Present in method blank
61808	05_DBMW41A-123	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61808	05_DBMW41A-123	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61808	05_DBMW41A-123	CLP-VOC	591786		J	2-HEXANONE	Continuing calibration percent difference
61808	05_DBMW41A-123	CLP-VOC	56235		J	CARBON TETRACHLORIDE	Continuing calibration percent difference
61808	05_DBMW41A-123	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61808	05_DBMW41A-123	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61808	05_DGMW68A-123	CLP-Metal	7440382	U		ARSENIC	Present in method blank
61808	05_DGMW68A-123	CLP-Metal	7439976	U		MERCURY	Present in method blank
61808	05_DGMW68A-123	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference

Project No # : 14786

CDM Federal Programs Corporation
Reason for Qualified Results
SDG Nos. : 61808

Sample Del Group (SDG)	Sample ID	Test Method	CAS No.	Detected Qualifier	Non Detected Qualifier	Analyte Name	Reason
61808	05_DGMW68A-123	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61808	05_DGMW68A-123	CLP-VOC	591786		J	2-HEXANONE	Continuing calibration percent difference
61808	05_DGMW68A-123	CLP-VOC	56235		J	CARBON TETRACHLORIDE	Continuing calibration percent difference
61808	05_DGMW68A-123	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61808	05_DGMW68A-123	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61808	BT1-923	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61808	BT1-923	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61808	BT1-923	CLP-VOC	591786		J	2-HEXANONE	Continuing calibration percent difference
61808	BT1-923	CLP-VOC	56235		J	CARBON TETRACHLORIDE	Continuing calibration percent difference
61808	BT1-923	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61808	BT1-923	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference

Enclosure I

EPA Level III ADR Outliers
(including Manual Review Outliers)

Quality Control Outlier Reports

SDG 06-1808

A D R

LDC #: 14786A1

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 4/3/06
Page: 1 of 1
Reviewer: a
2nd Reviewer: K

SDG #: 06-1808
Laboratory: Applied Physics & Chemistry Laboratory

METHOD: GC/MS Volatiles (EPA CLP SOW OLM04.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 8/16/06
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	
IV.	Continuing calibration	SW	
V.	Blanks	A	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	A	No MS/MSD for #7. — None/A
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	Not reviewed for Level III validation.
XII.	Compound quantitation/CRQLs	A	Not reviewed for Level III validation.
XIII.	Tentitatively identified compounds (TICs)	A	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D=6+7. 2+3.
XVII.	Field blanks	SW	TB=12

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

All H_2O

1	01_MW201-123	11	05_DGMW68A-123	21	06G1410MB01	31	
2	02NEW7-123	12	BT1-923	22	06G1419MB01	32	
3	02NEW7-323	13	04_UGMW63-123MS	23		33	
4	02_NEW8A-123	14	04_UGMW63-123MSD	24		34	
5	03_DGMW64A-123**	15		25		35	
6	03_DGMW65XA-123	16		26		36	
7	03_DGMW65XA-323	17		27		37	
8	04_DGMW66A-123	18		28		38	
9	04_UGMW63-123**	19		29		39	
10	05_DGMW41A-123	20		30		40	

TARGET COMPOUND WORKSHEET

METHOD: VOA (~~EPA SW-846 Method 8260B)~~

A. Chloromethane*	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC.1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl choride**	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform*	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene**	BB. 1,1,2,2-Tetrachloroethane*	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane*	CC. Toluene**	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene*	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. 1,1,2-Trichlorotrifluoroethane
K. Chloroform**	EE. Ethylbenzene**	YY. n-Propylbenzene	SSS. o-Xylene	MMMM.
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNN.
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO.
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane**	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

* = System performance check compounds (SPCC) for RRF ; ** = Calibration check compounds (CCC) for %RSD.

LDC #: [illegible]36A1
SDG #: 06-1808

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Reviewer: q
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?
Y N N/A Were all percent differences (%D) ≤ 25% and relative response factors (RRF) ≥ 0.05?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤25.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
	3/20/06	G1410Q01	JJ	26.2		1-6, 8-14	J/UJ/A
			D	32.7		06G1410MB01	
			M	65.7			
			O	29.8			
			Q	40.5			
			Z	27.0			
	3/21/06	G1419Q01	D	39.8		7, 06G1419MB01	J/UJ/A
			M	85.1			
			O	26.0			
			Q	38.9			

CONCAL.1C4

Method Blank Outlier Report

Lab Reporting Batch :	61808	**Lab ID:**	APCL
Analysis Method :	CLP-Metal	**Analysis Date :**	03/20/2006
Preparation Type :	3010A	**Preparation Date :**	03/20/2006
Method Blank Lab Sample ID :	06M1161-MB-01	**Preparation Batch :**	06M1161M

ARSENIC	Result	Reporting Limit	Units	Lab Qual	Comments
Method Blank Result:	1.5	10	ug/L	B	

ARSENIC was qualified due to method blank contamination in the following associated samples:

Client Sample ID	Lab Sample ID	Dilution	Result	Lab Qual	Result Units
02_NEW8A-123	06-1808-4	1	7.3	B	ug/L
02NEW7-123	06-1808-2	1	7.1	B	ug/L
02NEW7-323	06-1808-3	1	7.4	B	ug/L
03_DGMW64A-123	06-1808-5	1	6.2	B	ug/L
04_DGMW66A-123	06-1808-8	1	5.9	B	ug/L
04_UGMW63-123	06-1808-9	1	4.5	B	ug/L
05_DBMW41A-123	06-1808-10	1	5.1	B	ug/L
05_DGMW68A-123	06-1808-11	1	4.6	B	ug/L

Method Blank Outlier Report

Lab Reporting Batch : 61808	**Lab ID:** APCL
Analysis Method : CLP-Metal	**Analysis Date :** 03/22/2006
Preparation Type : 7470A	**Preparation Date :** 03/22/2006
Method Blank Lab Sample ID : 06M1174-MB-01	**Preparation Batch :** 06M1174H

MERCURY	**Result**	**Reporting Limit**	**Units**	**Lab Qual**	**Comments**
Method Blank Result:	**0.073**	**0.2**	**ug/L**	**B**	

MERCURY was qualified due to method blank contamination in the following associated samples:

Client Sample ID	Lab Sample ID	Dilution	Result	Lab Qual	Result Units
02_NEW8A-123	06-1808-4	1	0.075	B	ug/L
02NEW7-123	06-1808-2	1	0.096	B	ug/L
02NEW7-323	06-1808-3	1	0.12	B	ug/L
03_DGMW64A-123	06-1808-5	1	0.034	B	ug/L
03_DGMW65XA-123	06-1808-6	1	0.064	B	ug/L
03_DGMW65XA-323	06-1808-7	1	0.11	B	ug/L
04_DGMW66A-123	06-1808-8	1	0.026	B	ug/L
04_UGMW63-123	06-1808-9	1	0.091	B	ug/L
05_DBMW41A-123	06-1808-10	1	0.11	B	ug/L
05_DGMW68A-123	06-1808-11	1	0.089	B	ug/L

LDC #: 14786A4 **VALIDATION COMPLETENESS WORKSHEET** Date: 3/31/06

SDG #: 06-1808 Level III/IV Page: 1 of 1

Laboratory: Applied Physics & Chemistry Laboratory Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: Dissolved Metals (EPA CLP SOW ILMO4.~~0~~ 2) ADR

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3/16/06
II.	Calibration	A	
III.	Blanks	SW	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Matrix Spike Analysis	A	3 MS/[illegible]
VI.	Duplicate Sample Analysis	A	
VII.	Laboratory Control Samples (LCS)	A	LCS
VIII.	Internal Standard (ICP-MS)	N	3 not utilized
IX.	Furnace Atomic Absorption QC	N	
X.	ICP Serial Dilution	A	
XI.	Sample Result Verification	A	Not reviewed for Level III validation.
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	N	
XIV.	Field Blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

A2

1	02NEW7-123	11	02NEW7-123MS	21		31	
2	02NEW7-323	12	~~02NEW7-123MSD~~	22		32	
3	02_NEW8A-123	13	02NEW7-123DUP	23		33	
4	03_DGMW64A-123**	14	05_DGMW68A-123MS	24		34	
5	03_DGMW65XA-123	15	~~05_DGMW68A-123MSD~~	25		35	
6	03_DGMW65XA-323	16	05_DGMW68A-123DUP	26		36	
7	04_DGMW66A-123	17	PB	27		37	
8	04_UGMW63-123**	18		28		38	
9	05_DGMW41A-123	19		29		39	
10	05_DGMW68A-123	20		30		40	

Notes: Level 3 = ADR

LDC #: 186A4

SDG #: 06-1808

METHOD: Trace metals (EPA CLP SOW ILM04.0) Soil preparation factor applied: ____________

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: All

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Reviewer: MB

2nd Reviewer: Q

				Sample Identification										
Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action level	4	8	ADR 1	2	3	5	6	7	9	10
Al														
Sb														
As		1.5	2.938	14.69	6.2	4.5	7.1	7.4	~~7.87~~ 7.3	9.5	9.7	5.9	5.1	4.6
Ba			2.489	12.445										
Be			0.237	1.185										
Cd			0.437	2.185										
Ca			55.016	275.08										
Cr														
Co			0.679	3.395		2.1				1.0	0.85	1.2		
Cu			1.413	7.065	3.4	5.0	3.9	2.4	1.5	3.5	3.5	3.8	4.2	
Fe														
Pb														
Mg			15.607	78.035										
Mn			1.019	5.095			1.8	1.3	0.66				2.5	
Hg		0.073		0.365	0.034	0.091	0.096	0.12	0.075	0.064	0.11	0.026	0.11	0.089
Ni														
K														
Se														
Ag														
Na			352.701	1763.5										
Tl														
V														
Zn														
B														
Mo			0.941	4.705										
Sr														

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

BLNKSMP.4C4

QC Outlier Report: Field Duplicates (Non-qualified Outliers)

Lab Report Batch: 61808 **Lab ID:** APCL

			Field Sample				Field Sample Duplicate						
Analysis Method	**Matrix**	**Analyte Name**	**Client Sample ID**	**Ana Type**	**Result**	**Lab Qualifier**	**Client Sample Duplicate ID**	**Ana Type**	**Result**	**Lab Qualifier**	**RPD Dup* (%)**	**RPD Criteria (%)**	**Result Units**
CLP-Metal	AQ	ALUMINUM	02NEW7-123	RES	27.8	B	02NEW7-323	RES	200	U	200.0	20	ug/L
	AQ	COPPER		RES	3.9	B		RES	2.4	B	47.6	20	ug/L
	AQ	IRON		RES	40.4	B		RES	29.3	B	31.9	20	ug/L
	AQ	MANGANESE		RES	1.8	B		RES	1.3	B	32.3	20	ug/L
	AQ	MERCURY		RES2	0.096	B		RES2	0.12	B	22.2	20	ug/L
CLP-Metal	AQ	IRON	03_DGMW65XA-	RES	114		03_DGMW65XA-	RES	74.3	B	42.2	20	ug/L
	AQ	MERCURY		RES2	0.064	B		RES2	0.11	B	52.9	20	ug/L

**Note: Outlier report also includes analytes detected in one sample but not in the related sample, i.e., analyte was detected in the field sample but not in the field duplicate sample, or vice versa. In this case, RPD value assigned to the field duplicate sample is 200.*

Project Number and Name: ***6218.084 - EL TORO***

Reporting Limits Outlier Report (detected results reported below the reporting limit)

Lab Report Batch: 61808 **Lab ID:** APCL

Client Sample ID	Lab Sample ID	Analysis Method	Matrix	Analyte Name	Lab Qualifier	Result	EDD Reporting Limit	Units
02_NEW8A-123	06-1808-4	CLP-Metal	AQ	ALUMINUM	B	21.8	200	ug/L
				ARSENIC	B	7.3	10	ug/L
				BARIUM	B	41.9	200	ug/L
				CHROMIUM	B	2.7	10	ug/L
				COPPER	B	1.5	25	ug/L
				IRON	B	22.2	100	ug/L
				MANGANESE	B	0.66	15	ug/L
				MERCURY	B	0.075	0.2	ug/L
				NICKEL	B	1.0	40	ug/L
	06-1808-4RE			POTASSIUM	B	1680	5000	ug/L
	06-1808-4			VANADIUM	B	5.0	50	ug/L
				ZINC	B	2.3	20	ug/L
02NEW7-123	06-1808-2			ALUMINUM	B	27.8	200	ug/L
				ARSENIC	B	7.1	10	ug/L
				BARIUM	B	79.9	200	ug/L
				CHROMIUM	B	3.0	10	ug/L
				COPPER	B	3.9	25	ug/L
				IRON	B	40.4	100	ug/L
				MANGANESE	B	1.8	15	ug/L
				MERCURY	B	0.096	0.2	ug/L
				NICKEL	B	2.1	40	ug/L
	06-1808-2RE			POTASSIUM	B	1930	5000	ug/L
	06-1808-2			VANADIUM	B	12.6	50	ug/L
		CLP-VOC		CHLOROBENZENE	J	0.4	1	ug/L
				TETRACHLOROETHENE	J	0.9	1	ug/L
				TOLUENE	J	0.4	1	ug/L
02NEW7-323	06-1808-3	CLP-Metal		ARSENIC	B	7.4	10	ug/L
				BARIUM	B	80.3	200	ug/L
				CHROMIUM	B	2.6	10	ug/L
				COPPER	B	2.4	25	ug/L
				IRON	B	29.3	100	ug/L
				MANGANESE	B	1.3	15	ug/L
				MERCURY	B	0.12	0.2	ug/L
				NICKEL	B	1.9	40	ug/L
	06-1808-3RE			POTASSIUM	B	1860	5000	ug/L
	06-1808-3			VANADIUM	B	12.5	50	ug/L

Reporting Limits Outlier Report (detected results reported below the reporting limit)

Lab Report Batch: 61808 **Lab ID:** APCL

Client Sample ID	Lab Sample ID	Analysis Method	Matrix	Analyte Name	Lab Qualifier	Result	EDD Reporting Limit	Units
02NEW7-323	06-1808-3	CLP-Metal	AQ	ZINC	B	19.1	20	ug/L
		CLP-VOC		CHLOROBENZENE	J	0.4	1	ug/L
				TETRACHLOROETHENE	J	0.8	1	ug/L
				TOLUENE	J	0.4	1	ug/L
03_DGMW64A-123	06-1808-5	CLP-Metal		ARSENIC	B	6.2	10	ug/L
				BARIUM	B	29.8	200	ug/L
				CHROMIUM	B	7.4	10	ug/L
				COPPER	B	3.4	25	ug/L
				IRON	B	37.2	100	ug/L
				MANGANESE	B	11.9	15	ug/L
				MERCURY	B	0.034	0.2	ug/L
	06-1808-5RE			POTASSIUM	B	4780	5000	ug/L
	06-1808-5			THALLIUM	B	1.9	10	ug/L
				VANADIUM	B	20.0	50	ug/L
03_DGMW65XA-123	06-1808-6			ALUMINUM	B	25.8	200	ug/L
				ARSENIC	B	9.5	10	ug/L
				BARIUM	B	64.2	200	ug/L
				CHROMIUM	B	6.0	10	ug/L
				COBALT	B	1.0	50	ug/L
				COPPER	B	3.5	25	ug/L
				MERCURY	B	0.064	0.2	ug/L
	06-1808-6RE			POTASSIUM	B	3840	5000	ug/L
	06-1808-6			THALLIUM	B	2.4	10	ug/L
				VANADIUM	B	41.8	50	ug/L
03_DGMW65XA-323	06-1808-7			ALUMINUM	B	25.5	200	ug/L
				ARSENIC	B	9.7	10	ug/L
				BARIUM	B	63.8	200	ug/L
				CHROMIUM	B	5.3	10	ug/L
				COBALT	B	0.85	50	ug/L
				COPPER	B	3.5	25	ug/L
				IRON	B	74.3	100	ug/L
				MERCURY	B	0.11	0.2	ug/L
	06-1808-7RE			POTASSIUM	B	3890	5000	ug/L
	06-1808-7			THALLIUM	B	2.9	10	ug/L
				VANADIUM	B	40.8	50	ug/L
04_DGMW66A-123	06-1808-8			ARSENIC	B	5.9	10	ug/L

Reporting Limits Outlier Report (detected results reported below the reporting limit)

Lab Report Batch: 61808 **Lab ID:** APCL

Client Sample ID	Lab Sample ID	Analysis Method	Matrix	Analyte Name	Lab Qualifier	Result	EDD Reporting Limit	Units
04_DGMW66A-123	06-1808-8	CLP-Metal	AQ	BARIUM	B	74.4	200	ug/L
				CHROMIUM	B	4.9	10	ug/L
				COBALT	B	1.2	50	ug/L
				COPPER	B	3.8	25	ug/L
				MERCURY	B	0.026	0.2	ug/L
				SELENIUM	B	3.5	5	ug/L
				THALLIUM	B	2.7	10	ug/L
				VANADIUM	B	18.9	50	ug/L
04_UGMW63-123	06-1808-9			ALUMINUM	B	19.3	200	ug/L
				ARSENIC	B	4.5	10	ug/L
				BARIUM	B	76.2	200	ug/L
				CHROMIUM	B	3.8	10	ug/L
				COBALT	B	2.1	50	ug/L
				COPPER	B	5.0	25	ug/L
				IRON	B	29.5	100	ug/L
				MERCURY	B	0.091	0.2	ug/L
	06-1808-9RE			POTASSIUM	B	3820	5000	ug/L
	06-1808-9			THALLIUM	B	3.0	10	ug/L
				VANADIUM	B	13.9	50	ug/L
				ZINC	B	9.3	20	ug/L
05_DBMW41A-123	06-1808-10			ALUMINUM	B	40.6	200	ug/L
				ARSENIC	B	5.1	10	ug/L
				BARIUM	B	59.1	200	ug/L
				CHROMIUM	B	3.7	10	ug/L
				COPPER	B	4.2	25	ug/L
				IRON	B	43.5	100	ug/L
				MANGANESE	B	2.5	15	ug/L
				MERCURY	B	0.11	0.2	ug/L
				NICKEL	B	4.5	40	ug/L
	06-1808-10RE			POTASSIUM	B	2890	5000	ug/L
	06-1808-10			THALLIUM	B	2.0	10	ug/L
				VANADIUM	B	10.4	50	ug/L
		CLP-VOC		BROMODICHLOROMETHANE	J	0.5	1	ug/L
05_DGMW68A-123	06-1808-11	CLP-Metal		ALUMINUM	B	32.4	200	ug/L
				ARSENIC	B	4.6	10	ug/L
				BARIUM	B	24.7	200	ug/L

Reporting Limits Outlier Report (detected results reported below the reporting limit)

Lab Report Batch: 61808 **Lab ID:** APCL

Client Sample ID	Lab Sample ID	Analysis Method	Matrix	Analyte Name	Lab Qualifier	Result	EDD Reporting Limit	Units
05_DGMW68A-123	06-1808-11	CLP-Metal	AQ	CHROMIUM	B	3.8	10	ug/L
				COPPER	B	9.1	25	ug/L
				IRON	B	51.8	100	ug/L
				MANGANESE	B	5.2	15	ug/L
				MERCURY	B	0.089	0.2	ug/L
				NICKEL	B	6.1	40	ug/L
	06-1808-11RE			POTASSIUM	B	3150	5000	ug/L
	06-1808-11			VANADIUM	B	11.4	50	ug/L
		CLP-VOC		BROMODICHLOROMETHANE	J	0.6	1	ug/L
BT1-923	06-1808-12			METHYLENE CHLORIDE	J	0.3	5	ug/L

Enclosure II

EPA Level IV Validation Reports

LDC Report# 14786A1

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro, CTO 084

Collection Date: March 16, 2006

LDC Report Date: April 4, 2006

Matrix: Water

Parameters: Volatiles

Validation Level: NFESC Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 06-1808

Sample Identification

03_DGMW64A-123
04_UGMW63-123
04_UGMW63-123MS
04_UGMW63-123MSD

Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Contract Laboratory Program Statement of Work (SOW) OLM04.1 for Volatiles.

This review follows USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999); the following subsections correlate to the above guidelines.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds.

Average relative response factors (RRF) for all volatile target compounds and system monitoring compounds were within validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
3/20/06	Dichlorodifluoromethane Chloroethane 2-Butanone Carbon tetrachloride 1,2-Dichloropropane 2-Hexanone	26.2 32.7 65.7 29.8 40.5 27.0	All samples in SDG 06-1808	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values were within validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

No field blanks were identified in this SDG.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the SOW. All surrogate recoveries were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag	A or P
06G1410MB01	1,2-Dichloroethane-d4	115 (76-114)	All TCL compounds	J (all detects)	P

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Although laboratory control samples were not required by the method, laboratory control samples were reported by the laboratory. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

All tentatively identified compounds were within validation criteria.

XIV. System Performance

The system performance was within validation criteria.

XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

MCAS El Toro, CTO 084
Volatiles - Data Qualification Summary - SDG 06-1808

SDG	Sample	Compound	Flag	A or P	Reason
06-1808	03_DGMW64A-123 04_UGMW63-123	Dichlorodifluoromethane Chloroethane 2-Butanone Carbon tetrachloride 1,2-Dichloropropane 2-Hexanone	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)

MCAS El Toro, CTO 084
Volatiles - Laboratory Blank Data Qualification Summary - SDG 06-1808

No Sample Data Qualified in this SDG

MCAS El Toro, CTO 084
Volatiles - Field Blank Data Qualification Summary - SDG 06-1808

No Sample Data Qualified in this SDG

LDC #: 14786A1

SDG #: 06-1808

Laboratory: Applied Physics & Chemistry Laboratory

VALIDATION COMPLETENESS WORKSHEET

Level ~~III/IV~~ - IV

Date: 4/3/06

Page: 1 of 1

Reviewer: a

2nd Reviewer: 9

METHOD: GC/MS Volatiles (EPA CLP SOW OLM04.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 8/16/06
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	
IV.	Continuing calibration	SW	
V.	Blanks	A	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	A	No MS/MSD for #7. - None/A
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	Not reviewed for Level III validation.
XII.	Compound quantitation/CRQLs	A	Not reviewed for Level III validation.
XIII.	Tentitatively identified compounds (TICs)	A	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	
XVI.	Field duplicates	~~SW~~ N	~~D=6+7. 2+3.~~
XVII.	Field blanks	~~SW~~ N	~~FB=12~~

Note: A = Acceptable ND = No compounds detected D = Duplicate
N = Not provided/applicable R = Rinsate TB = Trip blank
SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

All H2O

1 1	~~01_MW201-123~~	11 1	~~05_DGMW68A-123~~	21 1	06G1410MB01	31	
2 1	~~02NEW7-123~~	12 1	~~BT1-923~~	22 1	06G1419MB01	32	
3 1	~~02NEW7-323~~	13 1	04_UGMW63-123MS	23		33	
4 1	~~02_NEW8A-123~~	14 1	04_UGMW63-123MSD	24		34	
5 1	03_DGMW64A-123**	15		25		35	
6 1	~~03_DGMW65XA-123~~	16		26		36	
7 2	~~03_DGMW65XA-323~~	17		27		37	
8 1	~~04_DGMW66A-123~~	18		28		38	
9 1	04_UGMW63-123**	19		29		39	
10 1	~~05_DGMW41A-123~~	20		30		40	

TARGET COMPOUND WORKSHEET

METHOD: VOA ~~(EPA SW 846 Method 8260B)~~

A. Chloromethane*	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC.1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl choride**	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform*	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene**	BB. 1,1,2,2-Tetrachloroethane*	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane*	CC. Toluene**	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene*	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. 1.1.2-Trichlorotrifluoroethane
K. Chloroform**	EE. Ethylbenzene**	YY. n-Propylbenzene	SSS. o-Xylene	MMMM.
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNN.
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO.
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane**	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

* = System performance check compounds (SPCC) for RRF ; ** = Calibration check compounds (CCC) for %RSD.

COMPNDL.1sb.wpd

LDC #: 14786A1
SDG #: 06-1808

VALIDATION FINDINGS CHECKLIST

Reviewer: 9
2nd Reviewer: [illegible]

Method: Volatiles (EPA CLP SOW OLM0~~3.1~~ 4.2)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS Instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) $\leq$ 30% and relative response factors (RRF) $\geq$ 0.05?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) $\leq$ 25% and relative response factors (RRF) $\geq$ 0.05?		✓		
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within QC limits?		✓		
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?		✓		
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓			
Was a MS/MSD analyzed every 20 samples of each matrix?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per analytical batch?	✓			

LDC #: 14786A1
SDG #: 06-1826

VALIDATION FINDINGS CHECKLIST

Reviewer: Q
2nd Reviewer: f

Validation Area	Yes	No	NA	Findings/Comments
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds of the associated calibration standard?	✓			
XI. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XII. Compound quantitation/CRQLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			✓	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			✓	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target compounds were detected in the field duplicates.	✓			

VALIDATION FINDINGS CHECKLIST

Validation Area	Yes	No	NA	Findings/Comments
XVII. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.	✓			

LDC #: 1 36A1
SDG #: 06-1808

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page 1 of 1
Reviewer: d
2nd Reviewer: 8

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A — Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?

Y N N/A — Were all percent differences (%D) ≤ 25% and relative response factors (RRF) ≥ 0.05?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤25.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
	3/20/06	FK10Q01	N	26.2		~~1-6, 8-14~~ 5	J/UJ/~~A~~ A
			D	32.7		06FK10MB01	
			M	65.7		9, 13-14	
			O *	29.8			
			Q	40.5			
			Z	27.0			
			~~S *~~		~~0.290 (≤0.30)~~		~~None~~
			~~BB *~~		~~0.257~~		
	~~3/21/06~~	~~FK19Q01~~	~~D~~	~~39.8~~		~~T, 06FK19MB01~~	~~J/UJ/A~~
			~~M~~	~~85.1~~			
			~~O *~~	~~26.0~~			
			~~Q~~	~~38.9~~			
			~~S *~~		~~0.272 (≤0.30)~~		
			~~BB~~		~~0.253~~		

~~* ccc cpds. only~~ ~~allow~~ ~~< 20% out.~~

CONCAL.1C4

LDC #: 15786A1
SDG #: 06-1808

VALIDATION FINDINGS WORKSHEET
Surrogate Spikes

Page: 1 of 1
Reviewer: q
2nd Reviewer: 2

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were all surrogate %R within QC limits listed below?

Y N N/A If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R out of outside of criteria?

#	Date	Lab ID/Reference	Surrogate	%Recovery (Limits)	Associated Samples	Qualifications
		06F1410MB01	DCE	115 (76-114)		Jdets/P
				( )		
				( )		
				( )		
				( )		
				( )		
				( )		
				( )		
				( )		
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				( )		
				( )		
				( )		
				( )		
				( )		
				( )		
				( )		
				( )		

	QC Limits (Soil)	QC Limits (Water)
SMC1 (TOL) = Toluene-d8	84-138	88-110
SMC2 (BFB) = Bromofluorobenzene	59-113	86-115
SMC3 (DCE) = 1,2-Dichloroethane-d4	70-121	76-114

LDC #: ~~4T86A~~ 1
SDG #: 06-1808

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: 2

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

RRF = $(A_x)(C_{is})/(A_{is})(C_x)$
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

A_x = Area of compound,
C_x = Concentration of compound,
S = Standard deviation of the RRFs
X = Mean of the RRFs

A_{is} = Area of associated internal standard
C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported RRF (10 std)	Recalculated RRF (10 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL	12/9/04	Methylene chloride (1st internal standard)	1.996	1.996	2.087	2.087	4.90	4.89
			Trichlorethene (2nd internal standard)	0.294	0.294	0.303	0.303	6.72	6.70
			Toluene (3rd internal standard)	1.507	1.507	1.578	1.578	4.46	4.46
2			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						
3			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						
4			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14786A1
SDG #: 06-1808

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: Q
2nd Reviewer: Q

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = $(A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (Initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	G410Q01	3/20/06	Methylene chloride (1st internal standard)	2.087	2.144	2.144	2.7	2.7
			Trichlorethene (2nd internal standard)	0.303	0.290	0.290	4.3	4.4
			Toluene (3rd internal standard)	1.518	1.670	1.670	10.0	10.0
2			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					
3			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					
4			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

CONCLC.1C4

LDC #: 4786A1
SDG #: 06-1808

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
Reviewer: a
2nd reviewer: 9

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 5

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8	10	10.02	100	100	0
Bromofluorobenzene		9.53	96	95	1
1,2-Dichloroethane-d4		10.75	108	108	0

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					

LDC #: 14786A1
SDG #: 08-1808

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: 9
2nd Reviewer: 9

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SSC - SC)/SA

Where: SSC = Spiked sample concentration
SA = Spike added
SC = Sample concentration

RPD = I MSC - MSDC I * 2/(MSC + MSDC)

MSC = Matrix spike percent recovery
MSDC = Matrix spike duplicate percent recovery

MS/MSD sample: 13/14

Compound	Spike Added (ug/L)		Sample Concentration (ug/L)	Spiked Sample Concentration (ug/L)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	—	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	10	10	ND	9.77	10.2	98	98	102	102	4	4
Trichloroethene				9.65	10.0	97	97	100	100	3	3
Benzene				9.81	10.4	98	98	104	104	6	6
Toluene				9.80	9.85	98	98	99	99	1	1
Chlorobenzene				9.66	9.67	97	97	97	97	0	0

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: ~~14786A~~ [1]
SDG #: 06-1808

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: Q
2nd reviewer: f

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

Y N N/A — Were all reported results recalculated and verified for all level IV samples?
Y N N/A — Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(DF)}{(A_{is})(RRF)(V_o)(\%S)}$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

RRF = Relative response factor of the calibration standard.

V_o = Volume or weight of sample pruged in milliliters (ml) or grams (g).

Df = Dilution factor.

%S = Percent solids, applicable to soils and solid matrices only.

Example:

Sample I.D. 5 , K :

Conc. = $\frac{(12123)(10)(1)}{(32133)(3.672)(\quad)(\quad)}$

= 10.3 µg/l

#	Sample ID	Compound	Reported Concentration ( )	Calculated Concentration ( )	Qualification

LDC Report# 14786A4

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro, CTO 084

Collection Date: March 16, 2006

LDC Report Date: April 1, 2006

Matrix: Water

Parameters: Metals

Validation Level: NFESC Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 06-1808

Sample Identification

03_DGMW64A-123
04_UGMW63-123

Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Contract Laboratory Program Statement of Work (SOW) for Inorganic Analysis, Multi-media, Multi-concentration, D.N. ILM04.2 for TAL Metals including Molybdenum.

This review follows USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) and incorporates updates per EPA SOW (D.N. ILM04.2); the following subsections correlate to the guidelines.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

U	Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
J	Indicates an estimated value.
R	Quality control indicates the data is not usable.
N	Presumptive evidence of presence of the constituent.
UJ	Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
A	Indicates the finding is based upon technical validation criteria.
P	Indicates the finding is related to a protocol/contractual deviation.
None	Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

All criteria for the initial calibration were met.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

CRDL standards for ICP and AA were analyzed and reported as required.

Instrument detection limits, interelement corrections and linear range analysis were performed at the required frequency.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Arsenic Mercury	1.5 ug/L 0.073 ug/L	All samples in SDG 05-4158
ICB/CCB	Arsenic Barium Beryllium Cadmium Calcium Cobalt Copper Magnesium Manganese Sodium Molybdenum	2.938 ug/L 2.489 ug/L 0.237 ug/L 0.437 ug/L 55.016 ug/L 0.679 ug/L 1.413 ug/L 15.607 ug/L 1.019 ug/L 352.701 ug/L 0.941 ug/L	All samples in SDG 05-4158

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample ID	Analyte	Reported Concentration	Modified Final Concentration
03_DGMW64A-123	Arsenic Copper Mercury	6.2 ug/L 3.4 ug/L 0.034 ug/L	6.2U ug/L 3.4U ug/L 0.034U ug/L
04_UGMW63-123	Arsenic Cobalt Copper Mercury	4.5 ug/L 2.1 ug/L 5.0 ug/L 0.091 ug/L	4.5U ug/L 2.1U ug/L 5.0U ug/L 0.091U ug/L

No field blanks were identified in this SDG.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VIII. Internal Standards (ICP-MS)

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

All sample result verifications were acceptable.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report if data has been qualified.

XIII. Field Duplicates

No field duplicates were identified in this SDG.

MCAS El Toro, CTO 084
Metals - Data Qualification Summary - SDG 06-1808

No Sample Data Qualified in this SDG

MCAS El Toro, CTO 084
Metals - Laboratory Blank Data Qualification Summary - SDG 06-1808

SDG	Sample ID	Analyte	Modified Final Concentration	A or P
06-1808	03_DGMW64A-123	Arsenic Copper Mercury	6.2U ug/L 3.4U ug/L 0.034U ug/L	A
06-1808	04_UGMW63-123	Arsenic Cobalt Copper Mercury	4.5U ug/L 2.1U ug/L 5.0U ug/L 0.091U ug/L	A

MCAS El Toro, CTO 084
Metals - Field Blank Data Qualification Summary - SDG 06-1808

No Sample Data Qualified in this SDG

LDC #: 14786A4

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

SDG #: 06-1808

Laboratory: Applied Physics & Chemistry Laboratory

Date: 3/31/06

Page: 1 of 1

Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: Dissolved Metals (EPA CLP SOW ILMO4.~~0~~ 2)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3/16/06
II.	Calibration	A	
III.	Blanks	SW	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Matrix Spike Analysis	A	MS/DUP
VI.	Duplicate Sample Analysis	A	
VII.	Laboratory Control Samples (LCS)	A	LCS
VIII.	Internal Standard (ICP-MS)	N	not utilized
IX.	Furnace Atomic Absorption QC	N	
X.	ICP Serial Dilution	A	
XI.	Sample Result Verification	A	Not reviewed for Level III validation.
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	N	
XIV.	Field Blanks	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet
ND = No compounds detected
R = Rinsate
FB = Field blank
D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

A2

1	~~02NEW7-123~~	11	~~02NEW7-123MS~~	21		31	
2	~~02NEW7-323~~	12	~~02NEW7-123MSD~~	22		32	
3	~~02_NEW8A-123~~	13	~~02NEW7-123DUP~~	23		33	
4	03_DGMW64A-123**	14	~~05_DGMW68A-123MS~~	24		34	
5	~~03_DGMW65XA-123~~	15	~~05_DGMW68A-123MSD~~	25		35	
6	~~03_DGMW65XA-323~~	16	~~05_DGMW68A-123DUP~~	26		36	
7	~~04_DGMW66A-123~~	17	PB	27		37	
8	04_UGMW63-123**	18		28		38	
9	~~05_DGMW41A-123~~	19		29		39	
10	~~05_DGMW68A-123~~	20		30		40	

Notes: Level 3 = ADR

LDC #: 14186A4
SDG #: 06-1808

Reviewer: MH
2nd Reviewer: Q

VALIDATION FINDINGS CHECKLIST

Method: Metals (EPA SOW ILM04.0)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury and 85-115% for cyanide) QC limits?	✓			
Were all initial calibration correlation coefficients $\geq$ 0.995?	✓			
Was a midrange cyanide standard distilled?			✓	
III. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
IV. ICP Interference Check Sample				
Were ICP interference check samples performed as required?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
V. Matrix spikes				
Was a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS. Soil / Water.	✓			
Were the MS percent recoveries (%R) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
VI. Duplicate Analyses				
Was a duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated DUP. Soil / Water.	✓			
Were the duplicate relative percent differences (RPD) $\leq$ 20% for waters and $\leq$ 35% for soil samples? A control limit of $\leq$ CRDL($\leq$ 2X CRDL for soil) was used for samples that were $\leq$ 5X the CRDL, including when only one of the duplicate sample values were $\leq$ 5X the CRDL.	✓			
VII. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?	✓			

LDC #: 14786A4
SDG #: 06-1808

VALIDATION FINDINGS CHECKLIST

Reviewer: MH
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
VIII. Internal Standards (Method 200.8)				
Were all the percent recoveries (%R) within the 60-125% of the intensity of the internal standard in the associated initial calibration?			✓	
If the %Rs were outside the criteria, was a reanalysis performed?			✓	
IX. Furnace Atomic Absorption QC				
If MSA was performed, was the correlation coefficients $\geq$ 0.995?			✓	
Do all applicable analyses have duplicate injections?			✓	
For sample concentrations > CRDL, are applicable duplicate injection RSD values < 20%?			✓	
Were analytical spike recoveries within the 85-115% QC limits?			✓	
X. ICP Serial Dilution				
Was an ICP serial dilution analyzed if analyte concentrations were > 50X the IDL?	✓			
Were all percent differences (%Ds) $\leq$ 10%?	✓			
Was there evidence of negative interference? If yes, professional judgement will be used to qualify the data.			✓	
XI. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
XII. Sample Result Verification				
Were CRDLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were results within the linear range of the ICP?	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
XV. Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: 14986A4
SDG #: 06-1808

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Page: 1 of 1
Reviewer: MG
2nd reviewer: [illegible]

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1-10	Aq	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻, ___ ___
11,13	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻, ___ ___
14,16	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻, ___ ___
Analysis Method		
ICP		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻, ___ ___
ICP Trace		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻, ___ ___
ICP-MS		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻, ___ ___
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN⁻,

Comments: Mercury by CVAA if performed

ELEMENTS.4

LDC #: 14986A4
SDG #: 06-1808

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Page: 1 of 1
Reviewer: MB
2nd Reviewer: Q

METHOD: Trace metals (EPA CLP SOW ILM04.0) Soil preparation factor applied: ____________
Sample Concentration units, unless otherwise noted: ug/L Associated Samples: All

				Sample Identification										
Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action level	4	8	ADR 1	2	3	5	6	7	9	10
Al														
Sb														
As		1.5	2.938	14.69	6.2	4.5	7.1	7.4	7.8	9.5	9.7	5.9	5.1	4.6
Ba			2.489	12.445										
Be			0.237	1.185										
Cd			0.437	2.185										
Ca			55.016	275.08										
Cr														
Co			0.679	3.395		2.1				1.0	0.85	1.2		
Cu			1.413	7.065	3.4	5.0	3.9	2.4	1.5	3.5	3.5	3.8	4.2	
Fe														
Pb														
Mg			15.607	78.035										
Mn			1.019	5.095			1.8	1.3	0.66				2.5	
Hg		0.073		0.365	0.034	0.091	0.096	0.12	0.075	0.064	0.11	0.026	0.11	0.089
Ni														
K														
Se														
Ag														
Na			352.701	1763.5										
Tl														
V														
Zn														
B														
Mo			0.941	4.705										
Sr														

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 14986A4
SDG #: 06-1808

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Page: 1 of 1
Reviewer: MH
2nd Reviewer:

METHOD: Trace metals (EPA CLP SOW ILM04.0)

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = concentration (in ug/L) of each analyte measured in the analysis of the ICV or CCV solution
True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated %R	Reported %R	Acceptable (Y/N)
ICV	ICP (Initial calibration)	Al	9733	10000	97.3	97.3	Y
	GFAA (Initial calibration)						
ICV	CVAA (Initial calibration)	Hg	8.143	7.5	108.6	108.6	Y
CCV	ICP (Continuing calibration)	V	2032	2000	101.6	101.6	Y
	GFAA (Continuing calibration)						
CCV	CVAA (Continuing calibration)	Hg	4.535	5.0	90.7	90.7	Y
	Cyanide (Initial calibration)						
	Cyanide (Continuing calibration)						

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14986A4
SDG #: 06-1808

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Reviewer: KH
2nd Reviewer: Q

METHOD: Trace metals (EPA CLP SOW ILM04.0)

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$$\%R = \frac{Found}{True} \times 100$$

Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$

Where, S = Original sample concentration
D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

$$\%D = \frac{|I-SDR|}{I} \times 100$$

Where, I = Initial Sample Result (ug/L)
SDR = Serial Dilution Result (ug/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated	Reported	Acceptable (Y/N)
					%R / RPD / %D	%R / RPD / %D	
ICSAB	ICP interference check	Ni	918.3	1000	91.8	91.8	Y
LCS	Laboratory control sample	Mo	507	500	101	101	
11	Matrix spike	Se	(SSR-SR) 9	10	90	90	
13	Duplicate	Zn	913.1	904.5	1.2	1.2	
11	ICP serial dilution	Ca	125.5	117.9	6.4	6.4	

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14786A4
SDG #: 06-1808

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: MH
2nd reviewer:

METHOD: Trace metals (EPA CLP SOW ILM04.0)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments and within the linear range of the ICP?
Y N N/A Are all detection limits below the CRDL?

Detected analyte results for 4 were recalculated and verified using the following equation:

Concentration = $\frac{(RD)(FV)(Dil)}{(In.\ Vol.)(\%S)}$

Recalculation:

From the raw data

Ni = 0.2215 mg/L = 221.5 ug/L

RD	=	Raw data concentration
FV	=	Final volume (ml)
In. Vol.	=	Initial volume (ml) or weight (G)
Dil	=	Dilution factor
%S	=	Decimal percent solids

#	Sample ID	Analyte	Reported Concentration (ug/L)	Calculated Concentration (ug/L)	Acceptable (Y/N)
1	4	As	6.2	6.2	Y
		Ba	29.8	29.8	
		Ca	61500	61500	
		Cr	7.4	7.4	
		Cu	3.4	3.4	
		Fe	37.2	37.2	
		Mg	41000	41000	
		Mn	11.9	11.9	
		Hg	0.034	0.034	
		Mo	28.9	28.9	
		Ni	222	222	
		K	4780	4780	
		Se	9.3	9.2	
		Na	197000	197000	
		Tl	1.9	1.9	
		V	20.0	20.0	
		Zn	512	512	

LDC Report# 14786A6

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro, CTO 084

Collection Date: March 16, 2006

LDC Report Date: April 1, 2006

Matrix: Water

Parameters: Wet Chemistry

Validation Level: NFESC Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 06-1808

Sample Identification

01_MW201-123
03_DGMW64A-123
03_DGMW64A-123DUP

Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0M for Perchlorate, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, and EPA Method 310.1 for Alkalinity.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration of each method were met.

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

No field blanks were identified in this SDG.

IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
03_DGMW64A-123	Chloride Nitrate as N Sulfate	No MS associated with these samples.	MS required.	None None None	P
01_MW201-123	Perchlorate	No MS associated with these samples.	MS required.	None	P

Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag	A or P
03_DGMW64A-123	Chloride Nitrate as N Sulfate	No DUP associated with these samples.	DUP required.	None None None	P
01_MW201-123	Perchlorate	No DUP associated with these samples.	DUP required.	None	P

Relative percent differences (RPD) were within QC limits.

VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VII. Sample Result Verification

All sample result verifications were within validation criteria.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

IX. Field Duplicates

No field duplicates were identified in this SDG.

MCAS El Toro, CTO 084
Wet Chemistry - Data Qualification Summary - SDG 06-1808

SDG	Sample	Analyte	Flag	A or P	Reason
06-1808	03_DGMW64A-123	Chloride Nitrate as N Sulfate	None None None	P	Matrix spike analysis
06-1808	01_MW201-123	Perchlorate	None	P	Matrix spike analysis
06-1808	03_DGMW64A-123	Chloride Nitrate as N Sulfate	None None None	P	Duplicate sample analysis
06-1808	01_MW201-123	Perchlorate	None	P	Duplicate sample analysis

MCAS El Toro, CTO 084
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 06-1808

No Sample Data Qualified in this SDG

MCAS El Toro, CTO 084
Wet Chemistry - Field Blank Data Qualification Summary - SDG 06-1808

No Sample Data Qualified in this SDG

LDC #: 14786A6

SDG #: 06-1808

Laboratory: Applied Physics & Chemistry Laboratory

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 3/31/06

Page: 1 of 1

Reviewer: MH

2nd Reviewer: Q

METHOD: (Analyte) Alkalinity (EPA Method 310.1), Chloride, Nitrate-N, Sulfate (EPA Method 300.0), Perchlorate (EPA Method 300.0M), TDS (EPA Method 160.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3/16/06
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	A	
IV	Matrix Spike/Matrix Spike Duplicates	N	No MS/Dup for Cl, NO_3-N, SO_4, & none/p 2-4
V	Duplicates	N	ClO_4, none/p #1
VI.	Laboratory control samples	A	LCS/LCSD
VII.	Sample result verification	A	Not reviewed for Level III validation.
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X	Field blanks	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet

ND = No compounds detected
R = Rinsate
FB = Field blank

D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

A2

1	01_MW201-123**	11		21		31	
2	03_DGMW64A-123**	12		22		32	
3	~~03_DGMW65XA-123~~	13		23		33	
4	~~03_DGMW65XA-323~~	14		24		34	
5	~~01_MW201-123MS~~	15		25		35	
6	~~01_MW201-123MSD~~	16		26		36	
7	03_DGMW64A-123DUP	17		27		37	
8	MB	18		28		38	
9		19		29		39	
10		20		30		40	

Notes: level 3 = ADR

LDC #: 14786A6
SDG #: 06-1818

VALIDATION FINDINGS CHECKLIST

Reviewer: MH
2nd Reviewer: [illegible]

Method: Inorganics (EPA Method See cover

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial calibration correlation coefficients ≥ 0.995?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% QC limits?	✓			
Were titrant checks performed as required? (Level IV only)	✓			
Were balance checks performed as required? (Level IV only)	✓			
III. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
IV. Matrix spike/Matrix spike duplicates and Duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.			✓	
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of ≤ CRDL(≤ 2X CRDL for soil) was used for samples that were ≤ 5X the CRDL, including when only one of the duplicate sample values were < 5X the CRDL.			✓	
V. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% (85-115% for Method 300.0) QC limits?	✓			
VI. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	

LDC #: 14786A6
SDG #: 06-1808

VALIDATION FINDINGS CHECKLIST

Reviewer: my
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
VII. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
VIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
IX. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
X. Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: 14986A6
SDG #: 061808

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Page: 1 of 1
Reviewer: MY
2nd reviewer: ___

All circled methods are applicable to each sample.

Sample ID	Parameter
1	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4 ___ ___ ___
2-4	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ___ ___ ___ ___
~~5,6~~	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ___ ___ ___ ___
7	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ___ ___ ___ ___
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ___ ___ ___ ___
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ___ ___ ___ ___
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ___ ___ ___ ___
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ___ ___ ___ ___
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ___ ___ ___ ___
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ___ ___ ___ ___
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ___ ___ ___ ___
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ___ ___ ___ ___
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ___ ___ ___ ___
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ___ ___ ___ ___
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ___ ___ ___ ___
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ___ ___ ___ ___
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ___ ___ ___ ___
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ___ ___ ___ ___
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ___ ___ ___ ___
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ___ ___ ___ ___
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ___ ___ ___ ___
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ___ ___ ___ ___
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ___ ___ ___ ___
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+}

Comments: ___

LDC #: 14786A6
SDG #: 06-1808

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Page: 1 of 1
Reviewer: MY
2nd Reviewer: [illegible]

METHOD: Inorganics, Method See cover

The correlation coefficient (r) for the calibration of SO4 was recalculated. Calibration date: 10/28/05

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$\%R = \frac{\text{Found}}{\text{True}} \times 100$ Where, Found = concentration of each analyte measured in the analysis of the ICV or CCV solution
True = concentration of each analyte in the ICV or CCV source

Type of Analysis	Analyte		Conc. (mg/L) (units)	Area (units)	Recalculated r or %R	Reported r or %R	Acceptable (Y/N)
Initial calibration	SO4	Blank	0	0	r^2=0.999110	r^2=0.999110	Y
Calibration verification		Standard 1	0.375	192214			
		Standard 2	1.5	761746			
		Standard 3	7.5	4036506			
		Standard 4	15	8596666			
		Standard 5	30	17993088			
		Standard 6					
		Standard 7					
Calibration verification ccv	SO4	50	48.4		97	97	Y
Calibration verification ccv	Cl	4.0	3.64		91	91	Y
Calibration verification ccv	NO3-N	1.5	1.43		95	95	Y

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

CALCLC.6

LDC #: 14786A6
SDG #: 06-1808

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Reviewer: MH
2nd Reviewer: 2

METHOD: Inorganics, Method see cover

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$ Where, S = Original sample concentration
D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated %R / RPD	Reported %R / RPD	Acceptable (Y/N)
LCS	Laboratory control sample	Cl	3.74	4.0	94	94	Y
NA	Matrix spike sample		(SSR-SR)				
7	Duplicate sample	Alkalinity	295	299	1	1	Y

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14786A6
SDG #: 061808

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: MM
2nd reviewer: Q

METHOD: Inorganics, Method See cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

- Y N N/A — Have results been reported and calculated correctly?
- Y N N/A — Are results within the calibrated range of the instruments?
- Y N N/A — Are all detection limits below the CRQL?

Compound (analyte) results for * / reported with a positive detect were recalculated and verified using the following equation:

Concentration =

$ClO_4 = \frac{(Area \times 0.0005301)}{} \times DF$

Recalculation:

$ClO_4 = (71011 \times 0.0005301) \times 10$

$= 376.4$

#	Sample ID	Analyte	Reported Concentration (mg/L)	Calculated Concentration (mg/L)	Acceptable (Y/N)
1	2	Alkalinity	299	299	Y
		TDS	851	851	
		Cl	152	152	
		NO_3-N	6.0	6.0	
		SO_4	157	157	
2	1	ClO_4	376	376	Y

Note:

RECALC.6

LDC Report# 14786A87

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro

Collection Date: March 16, 2006

LDC Report Date: April 4, 2006

Matrix: Water

Parameters: Perchlorate

Validation Level: NFESC Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 06-1808

Sample Identification

01_MW201-123
01_MW201-123MS
01_MW201-123MSD

Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 331.0 for Perchlorate.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. LC/MS Instrument Performance Check

Not applicable.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination (r^2) was greater than or equal to 0.990 .

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 20.0% .

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No perchlorate was found in the method blanks.

No field blanks were identified in this SDG.

VI. Surrogate Spikes

Surrogates were not required by the method.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

Not applicable.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment

Data flags have been summarized at the end of the report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

MCAS El Toro
Perchlorate - Data Qualification Summary - SDG 06-1808

No Sample Data Qualified in this SDG

MCAS El Toro
Perchlorate - Laboratory Blank Data Qualification Summary - SDG 06-1808

No Sample Data Qualified in this SDG

MCAS El Toro
Perchlorate - Field Blank Data Qualification Summary - SDG 06-1808

No Sample Data Qualified in this SDG

LDC #: 14786A87 **VALIDATION COMPLETENESS WORKSHEET** Date: 4/3/06
SDG #: 06-1808 Level IV Page: 1 of 1
Laboratory: Applied Physics & Chemistry Laboratory Reviewer: 9
2nd Reviewer: Q

METHOD: LC/MS Perchlorate (EPA Method 331.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3/16/06
IIa.	Initial calibration	A	r^2
IIb.	Calibration verification	A	20 ≤ 20
III.	Blanks	A	
IVa.	Surrogate recovery	NA	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	LCS
V.	Internal standards	A	
VI.	Target compound identification	A	
VII.	Compound Quantitation and CRQLs	A	
VIII.	System Performance	A	
IX.	Overall assessment of data	A	
X.	Field duplicates	N	
XI.	Field blanks	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet
ND = No compounds detected
R = Rinsate
FB = Field blank
D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples:

1	01_MW201-123 W	11	06W1T30MB01	21		31	
2	01_MW201-123MS	12		22		32	
3	01_MW201-123MSD	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 14786A8T
SDG #: 06-1808

VALIDATION FINDINGS CHECKLIST

Reviewer: 9
2nd Reviewer: 9

Method: ______ GC ✓ HPLC/MS

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Was a linear fit used for evaluation? If yes, were all percent relative standard deviations (%RSD) ≤ 20%?		✓		
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?	✓			
Did the initial calibration meet the curve fit acceptance criteria?	✓			
Were the RT windows properly established?	✓			
IV. Continuing calibration				
What type of continuing calibration calculation was performed? ✓ %D or ___ %R	✓			
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) ≤ 15%.0 or percent recoveries 85-115%?	✓			
Were all the retention times within the acceptance windows?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within the QC limits?			✓	
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓			
Was a MS/MSD analyzed every 20 samples of each matrix?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			

LDC #: 14786A8T
SDG #: 06-1808

VALIDATION FINDINGS CHECKLIST

Reviewer: [illegible]
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XI. Compound quantitation/CRQLs				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XII. System performance				
System performance was found to be acceptable.	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Were field duplicate pairs identified in this SDG?		✓		
Were target compounds idetected in the field duplicates?			✓	
XV. Field blanks				
Were field blanks identified in this SDG?		✓		
Were target compounds detected in the field blanks?			✓	

LDC #: 14T86A8T
SDG#: 06-1808

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: 8

METHOD: EPA Method 331.0

Parameter: Perchlorate

Order of regression: linear

DATE	GC ID	COLUMN	(X) CONC ug/L	(Y) AREA	(Y^2) AREA
03/22/2006	LC/MS	NA	0.05	0.0966	9.34E-003
			0.1	0.1723	2.97E-002
			0.2	0.3271	1.07E-001
			0.5	0.8634	7.45E-001
			1	1.7353	3.01E+000
			5	8.4363	7.12E+001

Regression Output:

Constant		0.01385
Std Err of Y Est		0.0225
R Squared		1.0000
No. of Observations		6
Degrees of Freedom		4
X Coefficient (s)	1.6858	-0.0183
Std Err of Coef.	0.0052	0.0030
Correlation Coefficient (r) =		0.9999806
Coefficient of Determination (r^2) =		0.9999613

LDC #: 4786A8T
SDG #: 06-1808

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC ___ ✓ HPLC / MS

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration CF were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. CF - CF)/ave. CF
CF = A/C

Where: ave. CF = initial calibration average CF
CF = continuing calibration CF
A = Area of compound
C = Concentration of compound

#	Standard ID	Calibration Date	Compound	Average CF(Ical)/ CCV Conc.	Reported CF/Conc. CCV	Recalculated CF/Conc. CCV	Reported %D	Recalculated %D
1								
2			See IC					
3								
4								

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14T86A8T
SDG #: 06-1808

Page: 1 of 1
Reviewer: Q
2nd Reviewer: Q

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

METHOD: ___ GC ✓ ~~HPLC~~ /LCMS

The percent recoveries (%R) and relative percent differences (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC - SC)/SA   Where   SSC = Spiked sample concentration   SC = Sample concentration
SA = Spike added
RPD =(({SSCMS - SSCMSD} * 2) / (SSCMS + SSCMSD))*100   MS = Matrix spike   MSD = Matrix spike duplicate

MS/MSD samples:________________

Compound	Spike Added (µg/L)		Sample Conc. (µg/L)	Spike Sample Concentration (µg/L)		Matrix spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	---	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)											
Diesel (8015)											
Benzene (8021B)											
Methane (RSK-175)											
2,4-D (8151)											
Dinoseb (8151)											
Naphthalene (8310)											
Anthracene (8310)											
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											
Perchlorate	400	400	359	784	787	106	106	107	107	0	0

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: ~~4T06A8~~ T
SDG #: 06-1808

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

____METHOD: __ GC √ HPLC/MS

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC - SC)/SA

RPD =(((SSCLCS - SSCLCSD) * 2) / (SSCLCS + SSCLCSD))*100

Where SSC = Spiked sample concentration
SA = Spike added
LCS = Laboratory Control Sample

SC = Sample concentration
LCSD = Laboratory Control Sample duplicate

LCS/LCSD samples: LCS

Compound	Spike Added (µg/L)		Sample Conc. (µg/L)	Spike Sample Concentration (µg/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	—	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)											
Diesel (8015)											
Benzene (8021B)											
Methane (RSK-175)											
2,4-D (8151)											
Dinoseb (8151)											
Naphthalene (8310)											
Anthracene (8310)											
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											
Perchlorate	0.10	NA	-	0.0875	NA	88	88				

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: ~~L786A~~ 8T
SDG #: 06-1808

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: [signature]
2nd Reviewer: [signature]

METHOD: __ GC ✓ ~~HPLC~~ / MS

Y N N/A   Were all reported results recalculated and verified for all level IV samples?
Y N N/A   Were all recalculated results for detected target compounds agree within 10% of the reported results?

Concentration = $\frac{(A)(Fv)(Df)}{(RF)(Vs \text{ or } Ws)(\%S/100)}$

A= Area or height of the compound to be measured
Fv= Final Volume of extract
Df= Dilution Factor
RF= Average response factor of the compound in the initial calibration
Vs= Initial volume of the sample
Ws= Initial weight of the sample
%S= Percent Solid

Example:

Sample ID. 1   Compound Name Perchlorate

Concentration = $\frac{\left[\left(\frac{18.38e+06}{6.052e+05}\right) - 0.0136\right] \times 200}{1.69}$

= 357.8 µg/L

#	Sample ID	Compound	Reported Concentrations ( )	Recalculated Results Concentrations ( )	Qualifications

Comments: ____________________

LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

CDM Federal
9444 Farnham Street, Suite 210
San Diego, CA 92123
ATTN: Mr. Michael Higman

April 13, 2006

SUBJECT: MCAS El Toro CTO 084, Data Validation

Dear Mr. Higman,

Enclosed is the final validation report and Excel qualification sheet for the fractions listed below. This SDG were received on April 3rd, 2006.

LDC project# 14798:

SDG #	Fraction
06-1826	Volatiles (Method CLP SOW OLM04.1) Metals (Method CLP SOW ILM04.2) Wet Chemistry (Method EPA 300.0, 310.1 and 160.1)

The following deliverables are submitted under this report:

- Attachment I — Sample ID Cross Reference and Data Review Level
- Attachment II — Overall Data Qualification Summary
- Attachment III — CDM Database Qualification Summary
- Enclosure I — EPA Level III ADR Outliers (including manual review outliers)
- Enclosure II — EPA Level IV DVR (manual review)

The data validation was performed in accordance to the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 and for Inorganic Data Review, October 2004. Where specific guidance is not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience. The following items were evaluated during the review:

- Holding Times
- Sample Preservation
- Cooler Temperatures
- Initial Calibration (Manual Review)
- Continuing Calibration (Manual Review)
- Blanks
- Surrogates
- Internal Standards (Manual Review)
- Matrix Spike/Matrix Spike Duplicates
- Laboratory Control Samples

- Detection and Quantitation Limits
- Field QC Samples

Please feel free to contact us if you have any questions.

Sincerely,

E Rauto

Erlinda T. Rauto
Operations Manager/Senior Chemist

Attachment I

Sample ID Cross Reference and Data Review Level

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
17-Mar-2006	04_DBMW40-123	06-1826-1	N	3010A	CLP-Metal	III
17-Mar-2006	04_DBMW40-123	06-1826-1	N	5030B	CLP-VOC	III
17-Mar-2006	04_DBMW40-123	06-1826-1	N	7470A	CLP-Metal	III
17-Mar-2006	04_DBMW40-123MS	06-1826-1MS	MS	5030B	CLP-VOC	III
17-Mar-2006	04_DBMW40-123MSD	06-1826-1MSD	MSD	5030B	CLP-VOC	III
17-Mar-2006	04_DBMW40-123	06-1826-1RE	N	3010A	CLP-Metal	III
17-Mar-2006	BT2-923	06-1826-4	TB	5030B	CLP-VOC	III
17-Mar-2006	05NEW1-123	06-1826-2	N	3010A	CLP-Metal	III
17-Mar-2006	05NEW1-123	06-1826-2	N	5030B	CLP-VOC	III
17-Mar-2006	05NEW1-123	06-1826-2	N	7470A	CLP-Metal	III
17-Mar-2006	05NEW1-123	06-1826-2	N	GEN PREP	160.1	III
17-Mar-2006	05NEW1-123	06-1826-2	N	GEN PREP	300.0	III
17-Mar-2006	05NEW1-123	06-1826-2	N	GEN PREP	310.1	III
17-Mar-2006	05NEW1-123DUP	06-1826-2MD	DUP	GEN PREP	310.1	III
17-Mar-2006	05NEW1-123MS	06-1826-2MS	MS	GEN PREP	300.0	III
17-Mar-2006	05NEW1-123MSD	06-1826-2MSD	MSD	GEN PREP	300.0	III
17-Mar-2006	05NEW1-123	06-1826-2RE	N	3010A	CLP-Metal	III
17-Mar-2006	05_DGMW67A-123	06-1826-3	N	3010A	CLP-Metal	IV
17-Mar-2006	05_DGMW67A-123	06-1826-3	N	5030B	CLP-VOC	IV
17-Mar-2006	05_DGMW67A-123	06-1826-3	N	7470A	CLP-Metal	IV
17-Mar-2006	05_DGMW67A-123	06-1826-3	N	GEN PREP	160.1	IV
17-Mar-2006	05_DGMW67A-123	06-1826-3	N	GEN PREP	300.0	IV
17-Mar-2006	05_DGMW67A-123	06-1826-3	N	GEN PREP	310.1	IV
17-Mar-2006	05_DGMW67A-123	06-1826-3RE	N	3010A	CLP-Metal	IV

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Attachment II

Overall Data Qualification Summary

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 61826										
CLP-Metal	04_DBMW40-123	AQ	N							
				ALUMINUM	200	23.3B		J	ug/L	
				ARSENIC	10	6.3B		U	ug/L	
				BARIUM	200	51.1B		J	ug/L	
				CHROMIUM	10	5.5B		J	ug/L	
				COBALT	50	4.2B		J	ug/L	
				COPPER	25	3.7B		U	ug/L	
				IRON	100	46.0B		J	ug/L	
				MANGANESE	15	12.3B		J	ug/L	
				MERCURY	0.2	0.027B		U	ug/L	
				POTASSIUM	5000	4340B		J	ug/L	
				THALLIUM	10	2.2B		J	ug/L	
				VANADIUM	50	23.9B		J	ug/L	
				ZINC	20	14.5B		J	ug/L	
CLP-Metal	05_DGMW67A-123	AQ	N							
				ARSENIC	10	5.3B		U	ug/L	
				BARIUM	200	51.6B		J	ug/L	
				CHROMIUM	10	3.2B		J	ug/L	
				COPPER	25	2.1B		U	ug/L	
				IRON	100	18.9B		J	ug/L	
				MANGANESE	15	0.61B		U	ug/L	
				MERCURY	0.2	0.032B		U	ug/L	
				NICKEL	40	2.2B		J	ug/L	
				POTASSIUM	5000	2550B		J	ug/L	
				VANADIUM	50	10.0B		J	ug/L	
				ZINC	20	2.1B		J	ug/L	

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 61826										
CLP-Metal	05NEW1-123	AQ	N							
				ARSENIC	10	8.8B		U	ug/L	
				BARIUM	200	118B		J	ug/L	
				CHROMIUM	10	4.8B		J	ug/L	
				COPPER	25	1.4B		U	ug/L	
				IRON	100	22.1B		J	ug/L	
				LEAD	3	1.2B		J	ug/L	
				MANGANESE	15	7.3B		J	ug/L	
				MERCURY	0.2	0.036B		U	ug/L	
				POTASSIUM	5000	3860B		J	ug/L	
				THALLIUM	10	4.8B		J	ug/L	
				VANADIUM	50	11.2B		J	ug/L	
				ZINC	20	3.7B		J	ug/L	
CLP-VOC	04_DBMW40-123	AQ	N							
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				CARBON TETRACHLORIDE	0.5	0.5U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
CLP-VOC	05_DGMW67A-123	AQ	N							
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				CARBON TETRACHLORIDE	0.5	0.5U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				CHLOROFORM	1	0.8J		J	ug/L	
CLP-VOC	05NEW1-123	AQ	N							
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				CARBON TETRACHLORIDE	0.5	0.5U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 61826										
CLP-VOC	BT2-923	AQ	TB							
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				CARBON TETRACHLORIDE	0.5	0.5U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				METHYLENE CHLORIDE	5	0.3J		J	ug/L	

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Attachment III

CDM Database Qualification Summary

CDM Federal Program Corporation

Project No # : 14798

Reason for Qualified Results

SDG Nos. : 61826

Sample Del Group (SDG)	Sample ID	Test Method	CAS No.	Detected Qualifier	Non Detected Qualifier	Analyte Name	Reason
61826	04_DBMW40-123	CLP-Metal	7440382	U		ARSENIC	Present in method blank
61826	04_DBMW40-123	CLP-Metal	7440508	U		COPPER	Present in method blank
61826	04_DBMW40-123	CLP-Metal	7439976	U		MERCURY	Present in method blank
61826	04_DBMW40-123	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61826	04_DBMW40-123	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61826	04_DBMW40-123	CLP-VOC	56235		J	CARBON TETRACHLORIDE	Continuing calibration percent difference
61826	04_DBMW40-123	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61826	05_DGMW67A-123	CLP-Metal	7440382	U		ARSENIC	Present in method blank
61826	05_DGMW67A-123	CLP-Metal	7440508	U		COPPER	Present in method blank
61826	05_DGMW67A-123	CLP-Metal	7439965	U		MANGANESE	Present in method blank
61826	05_DGMW67A-123	CLP-Metal	7439976	U		MERCURY	Present in method blank
61826	05_DGMW67A-123	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61826	05_DGMW67A-123	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61826	05_DGMW67A-123	CLP-VOC	56235		J	CARBON TETRACHLORIDE	Continuing calibration percent difference
61826	05_DGMW67A-123	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61826	05NEW1-123	CLP-Metal	7440382	U		ARSENIC	Present in method blank
61826	05NEW1-123	CLP-Metal	7440508	U		COPPER	Present in method blank
61826	05NEW1-123	CLP-Metal	7439976	U		MERCURY	Present in method blank
61826	05NEW1-123	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61826	05NEW1-123	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61826	05NEW1-123	CLP-VOC	56235		J	CARBON TETRACHLORIDE	Continuing calibration percent difference
61826	05NEW1-123	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61826	BT2-923	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61826	BT2-923	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61826	BT2-923	CLP-VOC	56235		J	CARBON TETRACHLORIDE	Continuing calibration percent difference
61826	BT2-923	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference

Enclosure I

EPA Level III ADR Outliers (including Manual Review Outliers)

Quality Control Outlier Reports

SDG 06-1826

LDC #: 14798A1

SDG #: 06-1826

Laboratory: Applied Physics & Chemistry Laboratory

VALIDATION COMPLETENESS WORKSHEET

Level ~~III/IV~~ ADR

Date: 4/11/06

Page: 1 of 1

Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC/MS Volatiles (EPA CLP SOW OLM04.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3/17/06
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	
IV.	Continuing calibration	SW	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	Not reviewed for Level III validation.
XII.	Compound quantitation/CRQLs	A	Not reviewed for Level III validation.
XIII.	Tentitatively identified compounds (TICs)	A	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	SW	TB = 4

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

All H_2Os

1	04_DBMW40-123	11	065K194B01	21		31	
2	05NEW1-123	12		22		32	
3	05_DGMW67A-123**	13		23		33	
4	BT2-923	14		24		34	
5	04_DBMW40-123MS	15		25		35	
6	04_DBMW40-123MSD	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA SW 846 Method 8260B)

A. Chloromethane*	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC.1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl choride**	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform*	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene**	BB. 1,1,2,2-Tetrachloroethane*	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane*	CC. Toluene**	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene*	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL. Ethyl ether
K. Chloroform**	EE. Ethylbenzene**	YY. n-Propylbenzene	SSS. o-Xylene	MMMM. Benzyl chloride
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNNN.
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO.
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane**	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

* = System performance check compounds (SPCC) for RRF ; ** = Calibration check compounds (CCC) for %RSD.

LDC #: 978A1
SDG #: 06-1836

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Reviewer: 9
2nd Reviewer: 2

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?
Y N N/A Were all percent differences (%D) ≤ 25% and relative response factors (RRF) ≥ 0.05?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤25.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
	3/21/06	E1419201	D	39.8		All + Blk	J/UJ/A
			M	85.1			
			O	26.0			
			Q	38.9			

CONCAL.1C4

Method Blank Outlier Report

Lab Reporting Batch : 61826	**Lab ID:** APCL
Analysis Method : CLP-Metal	**Analysis Date :** 03/20/2006
Preparation Type : 3010A	**Preparation Date :** 03/20/2006
Method Blank Lab Sample ID : 06M1161-MB-01	**Preparation Batch :** 06M1161M

ARSENIC	Result	Reporting Limit	Units	Lab Qual	Comments
Method Blank Result:	1.5	10	ug/L	B	

ARSENIC was qualified due to method blank contamination in the following associated samples:

Client Sample ID	Lab Sample ID	Dilution	Result	Lab Qual	Result Units
04_DBMW40-123	06-1826-1	1	6.3	B	ug/L
05_DGMW67A-123	06-1826-3	1	5.3	B	ug/L

Method Blank Outlier Report

Lab Reporting Batch : 61826
Analysis Method : CLP-Metal
Preparation Type : 7470A
Method Blank Lab Sample ID : 06M1174-MB-01

Lab ID: APCL
Analysis Date : 03/22/2006
Preparation Date : 03/22/2006
Preparation Batch : 06M1174H

MERCURY	Result	Reporting Limit	Units	Lab Qual	Comments
Method Blank Result:	0.073	0.2	ug/L	B	

MERCURY was qualified due to method blank contamination in the following associated samples:

Client Sample ID	Lab Sample ID	Dilution	Result	Lab Qual	Result Units
04_DBMW40-123	06-1826-1	1	0.027	B	ug/L
05_DGMW67A-123	06-1826-3	1	0.032	B	ug/L
05NEW1-123	06-1826-2	1	0.036	B	ug/L

LDC #: 14798A4

SDG #: 06-1826

Laboratory: Applied Physics & Chemistry Laboratory

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 4/4/06

Page: 1 of 1

Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: Dissolved Metals (EPA CLP SOW ILMO4.~~0~~ 2) AVR

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3/17/06
II.	Calibration	A	
III.	Blanks	SW	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Matrix Spike Analysis	A	MS/Dup from SDG 06-1808
VI.	Duplicate Sample Analysis	A	
VII.	Laboratory Control Samples (LCS)	A	LCS
VIII.	Internal Standard (ICP-MS)	N	Not utilized
IX.	Furnace Atomic Absorption QC	N	
X.	ICP Serial Dilution	A	
XI.	Sample Result Verification	A	Not reviewed for Level III validation.
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	N	
XIV.	Field Blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation AQ

1	04_DBMW40-123	11		21		31	
2	05NEW1-123	12		22		32	
3	05_DGMW67A-123**	13		23		33	
4	PB	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: Level 3 = AVR

LDC #: 798A4 VALIDATION FINDINGS WORKSHEET Page: 1 of 1
SDG #: 06-1826 **PB/ICB/CCB QUALIFIED SAMPLES** Reviewer: Mb
METHOD: Trace metals (EPA CLP SOW ILM04.0) Soil preparation factor applied: ______ 2nd Reviewer:
Sample Concentration units, unless otherwise noted: ug/L Associated Samples: All

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action level	3	1	2							
Al														
Sb														
As		1.5	2.938	14.69	5.3	6.3	8.8							
Ba			2.489	12.445										
Be			0.237	1.185										
Cd			0.437	2.185										
Ca			55.016	275.08										
Cr														
Co			0.679	3.395										
Cu			1.413	7.065	2.1	3.7	1.4							
Fe														
Pb														
Mg			15.607	78.035										
Mn			1.109	5.545	0.61									
Hg		0.073		0.365	0.032	0.027	0.036							
Ni														
K														
Se														
Ag														
Na			352.70	1763.5										
Tl														
V														
Zn														
B														
Mo			0.941	4.705										
Sr														

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

Reporting Limits Outlier Report (detected results reported below the reporting limit)

Lab Report Batch: 61826 **Lab ID:** APCL

Client Sample ID	Lab Sample ID	Analysis Method	Matrix	Analyte Name	Lab Qualifier	Result	EDD Reporting Limit	Units
04_DBMW40-123	06-1826-1	CLP-Metal	AQ	ALUMINUM	B	23.3	200	ug/L
				ARSENIC	B	6.3	10	ug/L
				BARIUM	B	51.1	200	ug/L
				CHROMIUM	B	5.5	10	ug/L
				COBALT	B	4.2	50	ug/L
				COPPER	B	3.7	25	ug/L
				IRON	B	46.0	100	ug/L
				MANGANESE	B	12.3	15	ug/L
				MERCURY	B	0.027	0.2	ug/L
	06-1826-1RE			POTASSIUM	B	4340	5000	ug/L
	06-1826-1			THALLIUM	B	2.2	10	ug/L
				VANADIUM	B	23.9	50	ug/L
				ZINC	B	14.5	20	ug/L
05_DGMW67A-123	06-1826-3			ARSENIC	B	5.3	10	ug/L
				BARIUM	B	51.6	200	ug/L
				CHROMIUM	B	3.2	10	ug/L
				COPPER	B	2.1	25	ug/L
				IRON	B	18.9	100	ug/L
				MANGANESE	B	0.61	15	ug/L
				MERCURY	B	0.032	0.2	ug/L
				NICKEL	B	2.2	40	ug/L
	06-1826-3RE			POTASSIUM	B	2550	5000	ug/L
	06-1826-3			VANADIUM	B	10.0	50	ug/L
				ZINC	B	2.1	20	ug/L
		CLP-VOC		CHLOROFORM	J	0.8	1	ug/L
05NEW1-123	06-1826-2	CLP-Metal		ARSENIC	B	8.8	10	ug/L
				BARIUM	B	118	200	ug/L
				CHROMIUM	B	4.8	10	ug/L
				COPPER	B	1.4	25	ug/L
				IRON	B	22.1	100	ug/L
				LEAD	B	1.2	3	ug/L
				MANGANESE	B	7.3	15	ug/L
				MERCURY	B	0.036	0.2	ug/L
	06-1826-2RE			POTASSIUM	B	3860	5000	ug/L
	06-1826-2			THALLIUM	B	4.8	10	ug/L
				VANADIUM	B	11.2	50	ug/L

Reporting Limits Outlier Report (detected results reported below the reporting limit)

Lab Report Batch: 61826 **Lab ID:** APCL

Client Sample ID	Lab Sample ID	Analysis Method	Matrix	Analyte Name	Lab Qualifier	Result	EDD Reporting Limit	Units
05NEW1-123	06-1826-2	CLP-Metal	AQ	ZINC	B	3.7	20	ug/L
BT2-923	06-1826-4	CLP-VOC		METHYLENE CHLORIDE	J	0.3	5	ug/L

Enclosure II

EPA Level IV Validation Reports

LDC Report# 14798A1

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro, CTO 084

Collection Date: March 17, 2006

LDC Report Date: April 11, 2006

Matrix: Water

Parameters: Volatiles

Validation Level: NFESC Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 06-1826

Sample Identification

05_DGMW67A-123

Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Contract Laboratory Program Statement of Work (SOW) OLM04.1 for Volatiles.

This review follows USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999); the following subsections correlate to the above guidelines.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds.

Average relative response factors (RRF) for all volatile target compounds and system monitoring compounds were within validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
3/21/06	Chloroethane 2-Butanone Carbon tetrachloride 1,2-Dichloropropane	39.8 85.1 26.0 38.9	All samples in SDG 06-1826	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values were within validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

No field blanks were identified in this SDG.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the SOW. All surrogate recoveries were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Although laboratory control samples were not required by the method, laboratory control samples were reported by the laboratory. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

All tentatively identified compounds were within validation criteria.

XIV. System Performance

The system performance was within validation criteria.

XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

MCAS El Toro, CTO 084
Volatiles - Data Qualification Summary - SDG 06-1826

SDG	Sample	Compound	Flag	A or P	Reason
06-1826	05_DGMW67A-123	Chloroethane 2-Butanone Carbon tetrachloride 1,2-Dichloropropane	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)

MCAS El Toro, CTO 084
Volatiles - Laboratory Blank Data Qualification Summary - SDG 06-1826

No Sample Data Qualified in this SDG

MCAS El Toro, CTO 084
Volatiles - Field Blank Data Qualification Summary - SDG 06-1826

No Sample Data Qualified in this SDG

LDC #: 14798A1

SDG #: 06-1826

Laboratory: Applied Physics & Chemistry Laboratory

VALIDATION COMPLETENESS WORKSHEET

Level ~~III/IV~~ IV

Date: 4/11/06

Page: 1 of 1

Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC/MS Volatiles (EPA CLP SOW OLM04.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3/17/06
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	
IV.	Continuing calibration	SW	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	Not reviewed for Level III validation.
XII.	Compound quantitation/CRQLs	A	Not reviewed for Level III validation.
XIII.	Tentitatively identified compounds (TICs)	A	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; R = Rinsate; ND = No compounds detected; FB = Field blank; TB = Trip blank; D = Duplicate; EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

All H2O's

1	~~04_DBMW40-123~~	11	06G419UB01	21		31	
2	~~05NEW1-123~~	12		22		32	
3	05_DGMW67A-123**	13		23		33	
4	~~BT2-923~~	14		24		34	
5	~~04_DBMW40-123MS~~	15		25		35	
6	~~04_DBMW40-123MSD~~	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

LDC #: 14798A1
SDG #: 06-1836

VALIDATION FINDINGS CHECKLIST

Page: 1 of 3
Reviewer: 9
2nd Reviewer: 9

Method: Volatiles (EPA CLP SOW OLM0~~3.1~~ 4.2)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS Instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 30% and relative response factors (RRF) ≥ 0.05?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) ≤ 25% and relative response factors (RRF) ≥ 0.05?		✓		
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within QC limits?	✓			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓			
Was a MS/MSD analyzed every 20 samples of each matrix?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per analytical batch?	✓			

LDC #: 14798-A1
SDG #: 06-1836

VALIDATION FINDINGS CHECKLIST

Reviewer: Q
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds of the associated calibration standard?	✓			
XI. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XII. Compound quantitation/CRQLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?	✓			
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?	✓			
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target compounds were detected in the field duplicates.			✓	

LDC #: 14798A1
SDG #: 06-1826

VALIDATION FINDINGS CHECKLIST

Reviewer: Q
2nd Reviewer: Q

Validation Area	Yes	No	NA	Findings/Comments
XVII. Field blanks				
Field blanks were identified in this SDG.		✓		
Target compounds were detected in the field blanks.			✓	

TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA CLP SOW OLM04.2)

A. Chloromethane*	Q. 1,2-Dichloropropane**	GG. Xylenes, total	WW. Bromobenzene	MMM. Naphthalene
B. Bromomethane	R. cis-1,3-Dichloropropene	HH. Vinyl acetate	XX. 1,2,3-Trichloropropane	NNN. 1,2,3-Trichlorobenzene
C. Vinyl choride**	S. Trichloroethene	II. 2-Chloroethylvinyl ether	YY. n-Propylbenzene	OOO. 1,3,5-Trichlorobenzene
D. Chloroethane	T. Dibromochloromethane	JJ. Dichlorodifluoromethane	ZZ. 2-Chlorotoluene	PPP. trans-1,2-Dichloroethene
E. Methylene chloride	U. 1,1,2-Trichloroethane	KK. Trichlorofluoromethane	AAA. 1,3,5-Trimethylbenzene	QQQ. cis-1,2-Dichloroethene
F. Acetone	V. Benzene	LL. Methyl-tert-butyl ether	BBB. 4-Chlorotoluene	RRR. m,p-Xylenes
G. Carbon disulfide	W. trans-1,3-Dichloropropene	MM. 1,2-Dibromo-3-chloropropane	CCC. tert-Butylbenzene	SSS. o-Xylene
H. 1,1-Dichloroethene**	X. Bromoform*	NN. Diethyl ether	DDD. 1,2,4-Trimethylbenzene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane
I. 1,1-Dichloroethane*	Y. 4-Methyl-2-pentanone	OO. 2,2-Dichloropropane	EEE. sec-Butylbenzene	UUU. Benzyl chloride
J. 1,2-Dichloroethene, total	Z. 2-Hexanone	PP. Bromochloromethane	FFF. 1,3-Dichlorobenzene	VVV. 4-Ethyltoluene
K. Chloroform**	AA. Tetrachloroethene	QQ. 1,1-Dichloropropene	GGG. p-Isopropyltoluene	WWW. Ethanol
L. 1,2-Dichloroethane	BB. 1,1,2,2-Tetrachloroethane*	RR. Dibromomethane	HHH. 1,4-Dichlorobenzene	XXX. Ethyl ether
M. 2-Butanone	CC. Toluene**	SS. 1,3-Dichloropropane	III. n-Butylbenzene	
N. 1,1,1-Trichloroethane	DD. Chlorobenzene*	TT. 1,2-Dibromoethane	JJJ. 1,2-Dichlorobenzene	
O. Carbon tetrachloride	EE. Ethylbenzene**	UU. 1,1,1,2-Tetrachloroethane	KKK. 1,2,4-Trichlorobenzene	
P. Bromodichloromethane	FF. Styrene	VV. Isopropylbenzene	LLL. Hexachlorobutadiene	

* = System performance check compounds (SPCC) for RRF ; ** = Calibration check compounds (CCC) for %RSD.

Notes:____

LDC #: 9T8A1
SDG #: 06-1836

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Reviewer: 9
2nd Reviewer: 2

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?
Y N N/A Were all percent differences (%D) ≤ 25% and relative response factors (RRF) ≥ 0.05?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤25.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
	3/21/06	E419201	D	39.8		All + BLK	J/UJ/A
			M	85.1			
			O	26.0			
			Q	38.9			

CONCAL.1C4

LDC #: KT98A1

SDG #: 06-1826

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

VALIDATION FINDINGS WORKSHEET

Field Blanks

Page: 1 of 1

Reviewer: 9

2nd Reviewer: 2

Y N N/A Were field blanks identified in this SDG?

Y/N N/A Were target compounds detected in the field blanks?

Blank units: ug/L Associated sample units: ug/L

Sampling date: 3/17/06

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other:______ Associated Samples: 1-3

Compound	Blank ID	Sample Identification								
	4									
Methylene chloride	0.3									
Acetone										
Chloroform										
TICs:										
Unknown	4 (1.85)									
CRQL										

Blank units:______ Associated sample units:______

Sampling date:______

Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other:______ Associated Samples:______

Compound	Blank ID	Sample Identification								
Methylene chloride										
Acetone										
Chloroform										
CRQL										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 14798A1
SDG #: 06-1826

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

RRF = $(A_x)(C_{is})/(A_{is})(C_x)$
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

A_x = Area of compound,
C_x = Concentration of compound,
S = Standard deviation of the RRFs
X = Mean of the RRFs

A_{is} = Area of associated internal standard
C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported RRF (10 std)	Recalculated RRF (10 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL	12/9/04	Methylene chloride (1st internal standard)	1.996	1.996	2.087	2.087	4.90	4.89
			Trichlorethene (2nd internal standard)	0.294	0.294	0.303	0.303	6.72	6.70
			Toluene (3rd internal standard)	1.507	1.507	1.518	1.518	4.46	4.46
2			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						
3			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						
4			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14798A1
SDG #: 06-1826

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: Q
2nd Reviewer: R

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = $(A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (Initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	F1419Q01	3/21/06	Methylene chloride (1st internal standard)	2.087	2.151	2.151	3.1	3.1
			Trichlorethene (2nd internal standard)	0.303	0.272	0.272	10.2	10.3
			Toluene (3rd internal standard)	1.578	1.625	1.625	7.0	7.0
2			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					
3			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					
4			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14798A1
SDG #: 06-1826

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
Reviewer: 9
2nd reviewer: [illegible]

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 3

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8	10	9.93	100	99	1
Bromofluorobenzene			10.06	101	101	0
1,2-Dichloroethane-d4		11.07	111	111	0

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					

LDC #: KT98A1
SDG #: 06-1826

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SSC - SC)/SA   Where: SSC = Spiked sample concentration   SC = Sample concentration
SA = Spike added

RPD = I MSC - MSDC I * 2/(MSC + MSDC)   MSC = Matrix spike percent recovery   MSDC = Matrix spike duplicate percent recovery

MS/MSD sample: 5/6

Compound	Spike Added (µg/L)		Sample Concentration (µg/L)	Spiked Sample Concentration (µg/L)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	—	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	10	10	ND	9.81	9.24	98	98	92	92	6	6
Trichloroethene				9.71	10.1	97	97	101	101	4	4
Benzene				10.1	10.2	101	101	102	102	1	1
Toluene				9.23	9.61	92	92	96	96	4	4
Chlorobenzene				9.15	9.77	92	92	98	98	6	6

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14798A1
SDG #: 06-1836

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: 9
2nd reviewer: 9

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(DF)}{(A_{is})(RRF)(V_o)(\%S)}$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

RRF = Relative response factor of the calibration standard.

V_o = Volume or weight of sample pruged in milliliters (ml) or grams (g).

Df = Dilution factor.

%S = Percent solids, applicable to soils and solid matrices only.

Example:

Sample I.D. 3 , k :

Conc. = $\frac{(9994)(1.0)(1.)}{(31216)(3.792)(\quad)(\quad)}$

= 0.84 µg/L

#	Sample ID	Compound	Reported Concentration ( )	Calculated Concentration ( )	Qualification

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro, CTO 084

Collection Date: March 17, 2006

LDC Report Date: April 5, 2006

Matrix: Water

Parameters: Wet Chemistry

Validation Level: NFESC Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 06-1826

Sample Identification

05_DGMW67A-123

Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 160.1 for Total Dissolved Solids, EPA Method 300.0 for Chloride, Nitrate as Nitrogen, and Sulfate, and EPA Method 310.1 for Alkalinity.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A table summarizing all data qualification is provided at the end of this report. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration of each method were met.

b. Calibration Verification

Calibration verification frequency and analysis criteria were met for each method when applicable.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the method blanks.

No field blanks were identified in this SDG.

IV. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

VI. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VII. Sample Result Verification

All sample result verifications were within validation criteria.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

IX. Field Duplicates

No field duplicates were identified in this SDG.

MCAS El Toro, CTO 084
Wet Chemistry - Data Qualification Summary - SDG 06-1826

No Sample Data Qualified in this SDG

MCAS El Toro, CTO 084
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 06-1826

No Sample Data Qualified in this SDG

MCAS El Toro, CTO 084
Wet Chemistry - Field Blank Data Qualification Summary - SDG 06-1826

No Sample Data Qualified in this SDG

LDC #: 14798A6

SDG #: 06-1826

Laboratory: Applied Physics & Chemistry Laboratory

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 4/4/06

Page: 1 of 1

Reviewer: HW

2nd Reviewer:

METHOD: (Analyte) Alkalinity (EPA Method 310.1), Chloride, Nitrate-N, Sulfate (EPA Method 300.0), TDS (EPA Method 160.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3/17/06
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	A	
IV	Matrix Spike/Matrix Spike Duplicates	A	
V	Duplicates	A	
VI.	Laboratory control samples	A	LCS/LCSD
VII.	Sample result verification	A	Not reviewed for Level III validation.
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X	Field blanks	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet

ND = No compounds detected
R = Rinsate
FB = Field blank

D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

1	05NEW1-123	11		21		31	
2	05_DGMW67A-123**	12		22		32	
3	04_DBMW40-123MS	13		23		33	
4	04_DBMW40-123MSD	14		24		34	
5	05NEW1-123DUP	15		25		35	
6	MB	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: level 3 = ADR

LDC #: 14798A6
SDG #: 061826

VALIDATION FINDINGS CHECKLIST

Page: 1 of 1
Reviewer: MH
2nd Reviewer:

Method: Inorganics (EPA Method See cover

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial calibration correlation coefficients > 0.995?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% QC limits?	✓			
Were titrant checks performed as required? (Level IV only)	✓			
Were balance checks performed as required? (Level IV only)	✓			
III. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
IV. Matrix spike/Matrix spike duplicates and Duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
Were the MS/MSD or duplicate relative percent differences (RPD) < 20% for waters and < 35% for soil samples? A control limit of < CRDL(< 2X CRDL for soil) was used for samples that were < 5X the CRDL, including when only one of the duplicate sample values were < 5X the CRDL.	✓			
V. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% (85-115% for Method 300.0) QC limits?	✓			
VI. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	

LDC #: 14798A6
SDG #: 067826

VALIDATION FINDINGS CHECKLIST

Reviewer: MY
2nd Reviewer: Q

Validation Area	Yes	No	NA	Findings/Comments
VII. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
VIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
IX. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
X. Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: 14998A6
SDG #: 06-1526

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Page: 1 of 1
Reviewer: MY
2nd reviewer: Q

All circled methods are applicable to each sample.

Sample ID	Parameter
1,2	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ____ ____ ____ ____
or 3,4	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ____ ____ ____ ____
↓ 5	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ____ ____ ____ ____
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ____ ____ ____ ____
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ____ ____ ____ ____
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ____ ____ ____ ____
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ____ ____ ____ ____
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ____ ____ ____ ____
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ____ ____ ____ ____
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ____ ____ ____ ____
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ____ ____ ____ ____
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ____ ____ ____ ____
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ____ ____ ____ ____
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ____ ____ ____ ____
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ____ ____ ____ ____
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ____ ____ ____ ____
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ____ ____ ____ ____
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ____ ____ ____ ____
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ____ ____ ____ ____
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ____ ____ ____ ____
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ____ ____ ____ ____
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ____ ____ ____ ____
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ____ ____ ____ ____
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ____ ____ ____ ____
	pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+}

Comments:

LDC #: 14798A6
SDG #: 06-1826

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Page: 1 of 1
Reviewer: my
2nd Reviewer: [illegible]

METHOD: Inorganics, Method See cover

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$ Where, S = Original sample concentration
D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated %R / RPD	Reported %R / RPD	Acceptable (Y/N)
LCS	Laboratory control sample	SO_4	14.68	15	98	98	Y
3	Matrix spike sample	NO_3-N	(SSR-SR) 39.3	37.5	105	105	
5	Duplicate sample	Alkalinity	261	256	2	2	

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

TOTCLC.6

LDC #: 14798A6
SDG #: 06-1826

VALIDATION FINDINGS WORKSHEET

Initial and Continuing Calibration Calculation Verification

Page: 1 of 1
Reviewer: My
2nd Reviewer: R

METHOD: Inorganics, Method See cover

The correlation coefficient (r) for the calibration of Cl was recalculated. Calibration date: 10/28/03

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = concentration of each analyte measured in the analysis of the ICV or CCV solution
True = concentration of each analyte in the ICV or CCV source

Type of Analysis	Analyte		conc. (mg/L) (units)	Area (units)	Recalculated r or %R	Reported r or %R	Acceptable (Y/N)
Initial calibration Calibration verification	Cl	Blank	0	2890	r^2=0.998273	r^2=0.998273	Y
		Standard 1	0.1	228360			
		Standard 2	0.4	277569			
		Standard 3	2.0	1437207			
		Standard 4	4.0	3039756			
		Standard 5	8.0	6322926			
		Standard 6					
		Standard 7					
Calibration verification CCV	Cl	4.0	3.72		93	93	Y
Calibration verification CCV	NO_3-N	1.5	1.45		97	96	Y
Calibration verification CCV	SO_4	15	14.5		97	96	Y

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

CALCLC.6

LDC #: 14798A6
SDG #: 06-1826

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: MM
2nd reviewer: J

METHOD: Inorganics, Method See cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Have results been reported and calculated correctly?
(Y) N N/A Are results within the calibrated range of the instruments?
(Y) N N/A Are all detection limits below the CRQL?

Compound (analyte) results for 2 reported with a positive detect were recalculated and verified using the following equation:

Concentration =

$NO_3\text{-}N = (Area \times 5.199 \times 10^{-7} + 0.02332) \times DF$

Recalculation:

$NO_3\text{-}N = (764114 \times 5.199 \times 10^{-7} + 0.02332) \times 12.5 = 5.26$ mg/L

#	Sample ID	Analyte	Reported Concentration (mg/L)	Calculated Concentration (mg/L)	Acceptable (Y/N)
1	2	Alkalinity	257	257	Y
		TDS	840	840	
		Cl	84.7	84.7	
		$NO_3\text{-}N$	5.3	5.3	
		SO_4	242	242	

Note:

RECALC.6

LDC Report# 14798A4

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro, CTO 084

Collection Date: March 17, 2006

LDC Report Date: April 5, 2006

Matrix: Water

Parameters: Metals

Validation Level: NFESC Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 06-1826

Sample Identification

05_DGMW67A-123

Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Contract Laboratory Program Statement of Work (SOW) for Inorganic Analysis, Multi-media, Multi-concentration, D.N. ILM04.2 for TAL Metals including Molybdenum.

This review follows USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) and incorporates updates per EPA SOW (D.N. ILM04.2); the following subsections correlate to the guidelines.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

The following are definitions of the data qualifiers:

U	Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
J	Indicates an estimated value.
R	Quality control indicates the data is not usable.
N	Presumptive evidence of presence of the constituent.
UJ	Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
A	Indicates the finding is based upon technical validation criteria.
P	Indicates the finding is related to a protocol/contractual deviation.
None	Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

All criteria for the initial calibration were met.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

CRDL standards for ICP and AA were analyzed and reported as required.

Instrument detection limits, interelement corrections and linear range analysis were performed at the required frequency.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Arsenic Mercury	1.5 ug/L 0.073 ug/L	All samples in SDG 05-4158
ICB/CCB	Arsenic Barium Beryllium Cadmium Calcium Cobalt Copper Magnesium Manganese Sodium Molybdenum	2.938 ug/L 2.489 ug/L 0.237 ug/L 0.437 ug/L 55.016 ug/L 0.679 ug/L 1.413 ug/L 15.607 ug/L 1.109 ug/L 352.701 ug/L 0.941 ug/L	All samples in SDG 05-4158

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample ID	Analyte	Reported Concentration	Modified Final Concentration
05_DGMW67A-123	Arsenic Copper Manganese Mercury	5.3 ug/L 2.1 ug/L 0.61 ug/L 0.032 ug/L	5.3U ug/L 2.1U ug/L 0.61U ug/L 0.032U ug/L

No field blanks were identified in this SDG.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

Matrix spike (MS) samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VIII. Internal Standards (ICP-MS)

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

All sample result verifications were acceptable.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report if data has been qualified.

XIII. Field Duplicates

No field duplicates were identified in this SDG.

MCAS El Toro, CTO 084
Metals - Data Qualification Summary - SDG 06-1826

No Sample Data Qualified in this SDG

MCAS El Toro, CTO 084
Metals - Laboratory Blank Data Qualification Summary - SDG 06-1826

SDG	Sample ID	Analyte	Modified Final Concentration	A or P
06-1826	05_DGMW67A-123	Arsenic Copper Manganese Mercury	5.3U ug/L 2.1U ug/L 0.61U ug/L 0.032U ug/L	A

MCAS El Toro, CTO 084
Metals - Field Blank Data Qualification Summary - SDG 06-1826

No Sample Data Qualified in this SDG

LDC #: 14798A4 **VALIDATION COMPLETENESS WORKSHEET** Date: 4/4/06

SDG #: 06-1826 Level III/IV Page: 1 of 1

Laboratory: Applied Physics & Chemistry Laboratory Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: Dissolved Metals (EPA CLP SOW ILMO4.~~0~~ 2)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3/17/06
II.	Calibration	A	
III.	Blanks	SW	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Matrix Spike Analysis	A	MS/Dup from SDG 06-1808
VI.	Duplicate Sample Analysis	A	
VII.	Laboratory Control Samples (LCS)	A	LCS
VIII.	Internal Standard (ICP-MS)	N	Not utilized
IX.	Furnace Atomic Absorption QC	N	
X.	ICP Serial Dilution	A	
XI.	Sample Result Verification	A	Not reviewed for Level III validation.
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	N	
XIV.	Field Blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

AQ

1	~~04_DBMW40-123~~	11		21		31	
2	~~05NEW1-123~~	12		22		32	
3	05_DGMW67A-123**	13		23		33	
4	PB	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: level 3 = A&R

LDC #: 14798A4
SDG #: 061826

VALIDATION FINDINGS CHECKLIST

Reviewer: MH
2nd Reviewer: ✓

Method: Metals (EPA SOW ILM04.0)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury and 85-115% for cyanide) QC limits?	✓			
Were all initial calibration correlation coefficients ≥ 0.995?	✓			
Was a midrange cyanide standard distilled?			✓	
III. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
IV. ICP Interference Check Sample				
Were ICP interference check samples performed as required?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
V. Matrix spikes				
Was a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS. Soil / Water.				
Were the MS percent recoveries (%R) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.				
VI. Duplicate Analyses				
Was a duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated DUP. Soil / Water.				
Were the duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of ≤ CRDL(≤ 2X CRDL for soil) was used for samples that were ≤ 5X the CRDL, including when only one of the duplicate sample values were ≤ 5X the CRDL.				
VII. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?	✓			

LDC #: 14798A4
SDG #: 06-1826

VALIDATION FINDINGS CHECKLIST

Reviewer: MH
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
VIII. Internal Standards (Method 200.8)				
Were all the percent recoveries (%R) within the 60-125% of the intensity of the internal standard in the associated initial calibration?			✓	
If the %Rs were outside the criteria, was a reanalysis performed?			✓	
IX. Furnace Atomic Absorption QC				
If MSA was performed, was the correlation coefficients ≥ 0.995?			✓	
Do all applicable analyses have duplicate injections?			✓	
For sample concentrations > CRDL, are applicable duplicate injection RSD values < 20%?			✓	
Were analytical spike recoveries within the 85-115% QC limits?			✓	
X. ICP Serial Dilution				
Was an ICP serial dilution analyzed if analyte concentrations were > 50X the IDL?				
Were all percent differences (%Ds) ≤ 10%?				
Was there evidence of negative interference? If yes, professional judgement will be used to qualify the data.				
XI. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
XII. Sample Result Verification				
Were CRDLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were results within the linear range of the ICP?	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
XV. Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: 14798A4
SDG #: 06-1826

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Page: 1 of 1
Reviewer: Mg
2nd reviewer:

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1-3	Aq	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___ ___

Analysis Method

ICP		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___ ___
ICP Trace		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___ ___
ICP-MS		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-, ___ ___
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN^-,

Comments: Mercury by CVAA if performed

ELEMENTS.4

LDC #: 14798A4
SDG #: 06-1826
METHOD: Trace metals (EPA CLP SOW ILM04.0) Soil preparation factor applied: ____________
Sample Concentration units, unless otherwise noted: ug/L Associated Samples: All

Reviewer: MB
2nd Reviewer: R

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

				Sample Identification										
Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action level	3	Dup 1	2							
Al														
Sb														
As		1.5	2.938	14.69	5.3	6.3	8.8							
Ba			2.489	12.445										
Be			0.237	1.185										
Cd			0.437	2.185										
Ca			55.016	275.08										
Cr														
Co			0.679	3.395										
Cu			1.413	7.065	2.1	3.7	1.4							
Fe														
Pb														
Mg			15.607	78.035										
Mn			1.109	5.545	0.61									
Hg		0.073		0.365	0.032	0.027	0.036							
Ni														
K														
Se														
Ag														
Na			352.70	1763.5										
Tl														
V														
Zn														
B														
Mo			0.941	4.705										
Sr														

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 14798A4
SDG #: 06-1826

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Reviewer: MH
2nd Reviewer: Q

METHOD: Trace metals (EPA CLP SOW ILM04.0)

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = concentration (in ug/L) of each analyte measured in the analysis of the ICV or CCV solution
True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated %R	Reported %R	Acceptable (Y/N)
ICV	ICP (Initial calibration)	Be	979.9	1000	98.0	98.0	Y
	GFAA (Initial calibration)						
ICV	CVAA (Initial calibration)	Hg	8.143	7.5	108.6	108.6	Y
CCV	ICP (Continuing calibration)	Ni	2056	2000	102.8	102.8	Y
	GFAA (Continuing calibration)						
CCV	CVAA (Continuing calibration)	Hg	4.535	5.0	90.7	90.7	Y
	Cyanide (Initial calibration)						
	Cyanide (Continuing calibration)						

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14798A4
SDG #: 06-1826

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Page: 1 of 1
Reviewer: KH
2nd Reviewer: [illegible]

METHOD: Trace metals (EPA CLP SOW ILM04.0)

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$ Where, S = Original sample concentration
D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

$\%D = \frac{|I-SDR|}{I} \times 100$ Where, I = Initial Sample Result (ug/L)
SDR = Serial Dilution Result (ug/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated %R / RPD / %D	Reported %R / RPD / %D	Acceptable (Y/N)
ICSAB	ICP interference check	Zn	931.7	1000	93.2	93.2	Y
LCS	Laboratory control sample	Se	10.6	10	106	106	
05-DGMW68A	MS Matrix spike	Cr	(SSR-SR) 197.4	200	99	99	
	Duplicate	Mg	33.37	33.05	1.0	1.0	
	ICP serial dilution	Ca	125.45	117.9	6.4	6.4	

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14798A4　　　　　**VALIDATION FINDINGS WORKSHEET**　　　　　Page: 1 of 1
SDG #: 06-1826　　　　　**Sample Calculation Verification**　　　　　Reviewer: MH
2nd reviewer: 9

METHOD: Trace metals (EPA CLP SOW ILM04.0)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A　Have results been reported and calculated correctly?
Y N N/A　Are results within the calibrated range of the instruments and within the linear range of the ICP?
Y N N/A　Are all detection limits below the CRDL?

Detected analyte results for 3 were recalculated and verified using the following equation:

Concentration = $\frac{(RD)(FV)(Dil)}{(In. Vol.)(\%S)}$　　　　Recalculation:

RD = Raw data concentration
FV = Final volume (ml)
In. Vol. = Initial volume (ml) or weight (G)
Dil = Dilution factor
%S = Decimal percent solids

#	Sample ID	Analyte	Reported Concentration (ug/L)	Calculated Concentration (ug/L)	Acceptable (Y/N)
1	3	As	5.3	5.3	Y
		Ba	51.6	51.6	
		Ca	124000	124000	
		Cr	3.2	3.2	
		Cu	2.1	2.1	
		Fe	18.9	18.9	
		Mg	34500	34500	
		Mn	0.61	0.6	
		Hg	0.032	0.032	
		Mo	24.5	24.5	
		Ni	2.2	2.2	
		K	2550	2580	
		Se	7.7	7.7	
		Na	94100	94100	
		V	10.0	10.0	
		Zn	2.1	2.1	

LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

CDM Federal
9444 Farnham Street, Suite 210
San Diego, CA 92123
ATTN: Mr. Michael Higman

April 13, 2006

SUBJECT: MCAS El Toro CTO 084, Data Validation

Dear Mr. Higman,

Enclosed is the final validation report and Excel qualification sheet for the fractions listed below. This SDG were received on April 5th, 2006.

LDC project# 14803:

SDG #	Fraction
06-1845	Volatiles (Method CLP SOW OLM04.1) Metals (Method CLP SOW ILM04.2) Wet Chemistry (Method EPA 300.0, 310.1 and 160.1)

The following deliverables are submitted under this report:

- Attachment I — Sample ID Cross Reference and Data Review Level
- Attachment II — Overall Data Qualification Summary
- Attachment III — CDM Database Qualification Summary
- Enclosure I — EPA Level III ADR Outliers (including manual review outliers)

The data validation was performed in accordance to the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 and for Inorganic Data Review, October 2004. Where specific guidance is not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience. The following items were evaluated during the review:

- Holding Times
- Sample Preservation
- Cooler Temperatures
- Initial Calibration (Manual Review)
- Continuing Calibration (Manual Review)
- Blanks
- Surrogates
- Internal Standards (Manual Review)
- Matrix Spike/Matrix Spike Duplicates
- Laboratory Control Samples
- Detection and Quantitation Limits

- Detection and Quantitation Limits
- Field QC Samples

Please feel free to contact us if you have any questions.

Sincerely,

ERauto

Erlinda T. Rauto
Operations Manager/Senior Chemist

Attachment I

Sample ID Cross Reference and Data Review Level

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
20-Mar-2006	BT03-923	06-1845-2	TB	5030B	CLP-VOC	III
20-Mar-2006	17NEW1-123	06-1845-1	N	3010A	CLP-Metal	III
20-Mar-2006	17NEW1-123	06-1845-1	N	5030B	CLP-VOC	III
20-Mar-2006	17NEW1-123	06-1845-1	N	7470A	CLP-Metal	III
20-Mar-2006	17NEW1-123	06-1845-1	N	GEN PREP	160.1	III
20-Mar-2006	17NEW1-123	06-1845-1	N	GEN PREP	300.0	III
20-Mar-2006	17NEW1-123	06-1845-1	N	GEN PREP	310.1	III
20-Mar-2006	17NEW1-123MS	06-1845-1MS	MS	GEN PREP	300.0	III
20-Mar-2006	17NEW1-123MSD	06-1845-1MSD	MSD	GEN PREP	300.0	III
20-Mar-2006	17NEW1-123	06-1845-1RE	N	3010A	CLP-Metal	III

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Attachment II

Overall Data Qualification Summary

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 61845										
CLP-Metal	17NEW1-123	AQ	N							
				ARSENIC	10	2.0B		U	ug/L	
				BARIUM	200	155B		J	ug/L	
				CHROMIUM	10	4.8B		J	ug/L	
				IRON	100	28.6B		J	ug/L	
				MERCURY	0.2	0.16B		U	ug/L	
				POTASSIUM	5000	3120B		J	ug/L	
				THALLIUM	10	4.4B		U	ug/L	
				VANADIUM	50	6.5B		J	ug/L	
				ZINC	20	13.3B		J	ug/L	
CLP-VOC	17NEW1-123	AQ	N							
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				CARBON TETRACHLORIDE	0.5	0.5U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
CLP-VOC	BT03-923	AQ	TB							
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				CARBON TETRACHLORIDE	0.5	0.5U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				METHYLENE CHLORIDE	5	0.3J		J	ug/L	

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Attachment III

CDM Database Qualification Summary

CDM Federal Program Corporation

Project No # : 14803

Reason for Qualified Results

SDG Nos. : 61845

Sample Del Group (SDG)	Sample ID	Test Method	CAS No.	Detected Qualifier	Non Detected Qualifier	Analyte Name	Reason
61845	17NEW1-123	CLP-Metal	7440382	U		ARSENIC	Present in method blank
61845	17NEW1-123	CLP-Metal	7439976	U		MERCURY	Present in method blank
61845	17NEW1-123	CLP-Metal	7440280	U		THALLIUM	Present in method blank
61845	17NEW1-123	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61845	17NEW1-123	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61845	17NEW1-123	CLP-VOC	56235		J	CARBON TETRACHLORIDE	Continuing calibration percent difference
61845	17NEW1-123	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61845	BT03-923	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61845	BT03-923	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61845	BT03-923	CLP-VOC	56235		J	CARBON TETRACHLORIDE	Continuing calibration percent difference
61845	BT03-923	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference

Enclosure I

EPA Level III ADR Outliers (including Manual Review Outliers)

Quality Control Outlier Reports

SDG 06-1845

LDC #: 14803A1

SDG #: 06-1845

Laboratory: Applied Physics & Chemistry Laboratory

VALIDATION COMPLETENESS WORKSHEET

Level ~~III~~ ABF

Date: 4/11/06

Page: 1 of 1

Reviewer: q

2nd Reviewer: ______

METHOD: GC/MS Volatiles (EPA CLP SOW OLM04.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3/20/06
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	
IV.	Continuing calibration	SW	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/CRQLs	N	
XIII.	Tentitatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	
XVI.	Field duplicates	N	
XVII.	Field blanks	SW	TB = 2

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	17NEW1-123 W	11	060419MB01	21		31	
2	BT03-923 ↓	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA SW 846 Method 8260B)

A. Chloromethane*	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC.1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl choride**	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform*	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene**	BB. 1,1,2,2-Tetrachloroethane*	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane*	CC. Toluene**	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene*	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL.
K. Chloroform**	EE. Ethylbenzene**	YY. n-Propylbenzene	SSS. o-Xylene	MMMM.
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNN.
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO.
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane**	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

* = System performance check compounds (SPCC) for RRF ; ** = Calibration check compounds (CCC) for %RSD.

LDC #: 8034-1
SDG #: 06-1845

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Reviewer: 9
2nd Reviewer:

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?
Y N N/A Were all percent differences (%D) ≤ 25% and relative response factors (RRF) ≥ 0.05?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤25.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
	3/21/06	EK19201	D	39.8		All + Bk	J/UJ/A
			M	85.1			
			O	26.0			
			Q	38.9			

CONCAL.1C4

Method Blank Outlier Report

Lab Reporting Batch : 61845
Analysis Method : CLP-Metal
Preparation Type : 7470A
Method Blank Lab Sample ID : 06M1174-MB-01

Lab ID: APCL
Analysis Date : 03/22/2006
Preparation Date : 03/22/2006
Preparation Batch : 06M1174H

MERCURY	Result	Reporting Limit	Units	Lab Qual	Comments
Method Blank Result:	0.073	0.2	ug/L	B	

MERCURY was qualified due to method blank contamination in the following associated samples:

Client Sample ID	Lab Sample ID	Dilution	Result	Lab Qual	Result Units
17NEW1-123	06-1845-1	1	0.16	B	ug/L

LDC #: 14803A4

SDG #: 06-1845

Laboratory: Applied Physics & Chemistry Laboratory

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 4/5/06
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: ______

pvr

METHOD: Dissolved Metals (EPA CLP SOW ILMO4.~~0~~ 5)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3/20/06
II.	Calibration	A	
III.	Blanks	SW	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Matrix Spike Analysis	A	MS/MSD from SDGs 06-1875 + 06-1808
VI.	Duplicate Sample Analysis	A	
VII.	Laboratory Control Samples (LCS)	A	
VIII.	Internal Standard (ICP-MS)	N	not utilized
IX.	Furnace Atomic Absorption QC	N	
X.	ICP Serial Dilution	N	
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	N	
XIV.	Field Blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: [illegible]

1	17NEW1-123	11		21		31	
2	PB	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 14803A4
SDG #: 06-184X

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Reviewer: MB
2nd Reviewer:

METHOD: Trace metals (EPA CLP SOW ILM04.0) Soil preparation factor applied:
Sample Concentration units, unless otherwise noted: ug/L Associated Samples: All

				Sample Identification										
Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action level	1									
Al														
Sb														
As			1.663	8.315	2.0									
Ba			2.860	14.3										
Be			0.385	1.925										
Cd			0.745	3.725										
Ca														
Cr														
Co														
Cu														
Fe			5.387	26.935										
Pb			1.055	5.275										
Mg														
Mn			1.436	7.18										
Hg		0.073		0.365	0.16									
Ni														
K														
Se														
Ag			1.263	6.315										
Na														
Tl			2.002	10.01	4.4									
V														
Zn														
B														
Mo														
Sr														

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

Reporting Limits Outlier Report (detected results reported below the reporting limit)

Lab Report Batch: 61845 **Lab ID:** APCL

Client Sample ID	Lab Sample ID	Analysis Method	Matrix	Analyte Name	Lab Qualifier	Result	EDD Reporting Limit	Units
17NEW1-123	06-1845-1	CLP-Metal	AQ	ARSENIC	B	2.0	10	ug/L
				BARIUM	B	155	200	ug/L
				CHROMIUM	B	4.8	10	ug/L
				IRON	B	28.6	100	ug/L
				MERCURY	B	0.16	0.2	ug/L
	06-1845-1RE			POTASSIUM	B	3120	5000	ug/L
	06-1845-1			THALLIUM	B	4.4	10	ug/L
				VANADIUM	B	6.5	50	ug/L
				ZINC	B	13.3	20	ug/L
BT03-923	06-1845-2	CLP-VOC		METHYLENE CHLORIDE	J	0.3	5	ug/L

LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

CDM Federal
9444 Farnham Street, Suite 210
San Diego, CA 92123
ATTN: Mr. Michael Higman

April 13, 2006

SUBJECT: MCAS El Toro CTO 084, Data Validation

Dear Mr. Higman,

Enclosed is the final validation report and Excel qualification sheet for the fractions listed below. This SDG were received on April 7th, 2006.

LDC project# 14811:

SDG #	Fraction
06-1896	Volatiles (Method CLP SOW OLM04.1) TPH-Gas (Method SW 846 8015B) TPH-Diesel (Method SW 846 8015B)

The following deliverables are submitted under this report:

- Attachment I — Sample ID Cross Reference and Data Review Level
- Attachment II — Overall Data Qualification Summary
- Attachment III — CDM Database Qualification Summary
- Enclosure I — EPA Level III ADR Outliers (including manual review outliers)
- Enclosure II — EPA Level IV DVR (manual review)

The data validation was performed in accordance to the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 and for Inorganic Data Review, October 2004. Where specific guidance is not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience. The following items were evaluated during the review:

- Holding Times
- Sample Preservation
- Cooler Temperatures
- Initial Calibration (Manual Review)
- Continuing Calibration (Manual Review)
- Blanks
- Surrogates
- Internal Standards (Manual Review)
- Matrix Spike/Matrix Spike Duplicates
- Laboratory Control Samples

- Detection and Quantitation Limits
- Field QC Samples

Please feel free to contact us if you have any questions.

Sincerely,

ERauto

Erlinda T. Rauto
Operations Manager/Senior Chemist

Attachment I

Sample ID Cross Reference and Data Review Level

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
22-Mar-2006	16_MW13-123	06-1896-3	N	3510C	8015B DRO	III
22-Mar-2006	16_MW13-123	06-1896-3	N	5030B	8015B GRO	III
22-Mar-2006	16_MW13-123	06-1896-3	N	5030B	CLP-VOC	III
23-Mar-2006	16_MW3-123	06-1896-1	N	3510C	8015B DRO	III
23-Mar-2006	16_MW3-123	06-1896-1	N	5030B	8015B GRO	III
23-Mar-2006	16_MW3-123	06-1896-1	N	5030B	CLP-VOC	III
23-Mar-2006	16_MW3-123MS	06-1896-1MS	MS	5030B	8015B GRO	III
23-Mar-2006	16_MW3-123MSD	06-1896-1MSD	MSD	5030B	8015B GRO	III
23-Mar-2006	16_MW8-123	06-1896-2	N	3510C	8015B DRO	IV
23-Mar-2006	16_MW8-123	06-1896-2	N	5030B	8015B GRO	IV
23-Mar-2006	16_MW8-123	06-1896-2	N	5030B	CLP-VOC	IV
23-Mar-2006	BT6-923	06-1896-4	TB	5030B	CLP-VOC	III

III = EPA Level 3 Data Review
IV = EPA Level 4 Data Validation
N = Normal Sample
FD = Field Duplicate
TB = Trip Blank
FB = Field Blank
MS = Matrix Spike
MSD = Matrix Spike Duplicate

Attachment II

Overall Data Qualification Summary

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 61896										
8015B GRO	16_MW13-123	AQ	N							
				PHC AS GASOLINE	0.05	0.05J		U	mg/L	
8015B GRO	16_MW3-123	AQ	N							
				PHC AS GASOLINE	0.05	0.04J		U	mg/L	
8015B GRO	16_MW8-123	AQ	N							
				PHC AS GASOLINE	0.05	0.06		U	mg/L	
CLP-VOC	16_MW13-123	AQ	N							
				1,1-DICHLOROETHANE	1	1U		UJ	ug/L	
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
				TETRACHLOROETHENE	1	1U		UJ	ug/L	
CLP-VOC	16_MW3-123	AQ	N							
				1,1-DICHLOROETHANE	1	1U		UJ	ug/L	
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
				TETRACHLOROETHENE	1	1U		UJ	ug/L	
CLP-VOC	16_MW8-123	AQ	N							
				1,1-DICHLOROETHANE	1	1U		UJ	ug/L	
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
				TETRACHLOROETHENE	1	1U		UJ	ug/L	

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 61896										
CLP-VOC	BT6-923	AQ	TB							
				1,1-DICHLOROETHANE	1	1U		UJ	ug/L	
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
				TETRACHLOROETHENE	1	1U		UJ	ug/L	

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Attachment III

CDM Database Qualification Summary

CDM Federal Programs Corporation

Project No # : 14811

Reason for Qualified Results

SDG Nos. : 61896

Sample Del Group (SDG)	Sample ID	Test Method	CAS No.	Detected Qualifier	Non Detected Qualifier	Analyte Name	Reason
61896	16_MW13-123	8015B GRO	8006619	U		PHC AS GASOLINE	Present in method blank
61896	16_MW13-123	CLP-VOC	75343		J	1,1-DICHLOROETHANE	Continuing calibration percent difference
61896	16_MW13-123	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61896	16_MW13-123	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61896	16_MW13-123	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61896	16_MW13-123	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61896	16_MW13-123	CLP-VOC	127184		J	TETRACHLOROETHENE	Continuing calibration percent difference
61896	16_MW3-123	8015B GRO	8006619	U		PHC AS GASOLINE	Present in method blank
61896	16_MW3-123	CLP-VOC	75343		J	1,1-DICHLOROETHANE	Continuing calibration percent difference
61896	16_MW3-123	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61896	16_MW3-123	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61896	16_MW3-123	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61896	16_MW3-123	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61896	16_MW3-123	CLP-VOC	127184		J	TETRACHLOROETHENE	Continuing calibration percent difference
61896	16_MW8-123	8015B GRO	8006619	U		PHC AS GASOLINE	Present in method blank
61896	16_MW8-123	CLP-VOC	75343		J	1,1-DICHLOROETHANE	Continuing calibration percent difference
61896	16_MW8-123	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61896	16_MW8-123	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61896	16_MW8-123	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61896	16_MW8-123	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61896	16_MW8-123	CLP-VOC	127184		J	TETRACHLOROETHENE	Continuing calibration percent difference
61896	BT6-923	CLP-VOC	75343		J	1,1-DICHLOROETHANE	Continuing calibration percent difference
61896	BT6-923	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61896	BT6-923	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61896	BT6-923	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61896	BT6-923	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61896	BT6-923	CLP-VOC	127184		J	TETRACHLOROETHENE	Continuing calibration percent difference

Enclosure I

EPA Level III ADR Outliers (including Manual Review Outliers)

Quality Control Outlier Reports

SDG 06-1896

Method Blank Outlier Report

Lab Reporting Batch : 61896	**Lab ID:** APCL
Analysis Method : 8015B GRO	**Analysis Date :** 03/27/2006
Preparation Type : 5030B	**Preparation Date :** 03/27/2006
Method Blank Lab Sample ID : 06G1460-MB-01	**Preparation Batch :** 06G1460

PHC AS GASOLINE	**Result**	**Reporting Limit**	**Units**	**Lab Qual**	**Comments**
Method Blank Result:	**0.02**	**0.05**	**mg/L**	**J**	

PHC AS GASOLINE was qualified due to method blank contamination in the following associated samples:

Client Sample ID	Lab Sample ID	Dilution	Result	Lab Qual	Result Units
16_MW13-123	06-1896-3	1	0.05	J	mg/L
16_MW3-123	06-1896-1	1	0.04	J	mg/L
16_MW8-123	06-1896-2	1	0.06		mg/L

METHOD BLANK OUTLIER REPORT
PAGE 2 OF 2

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EXTENSIVE RESEARCH WAS PERFORMED BY NAVFAC SOUTHWEST RECORDS OFFICE TO LOCATE THE MISSING PAGE. THIS PAGE HAS BEEN INSERTED AS A PLACEHOLDER AND WILL BE REPLACED SHOULD THE MISSING ITEM BE LOCATED.

FOR ADDITIONAL INFORMATION, CONTACT:

DIANE C. SILVA, RECORDS MANAGER
NAVAL FACILITIES ENGINEERING COMMAND, SOUTHWEST
1220 PACIFIC HIGHWAY
SAN DIEGO, CA 92132

TELEPHONE: (619) 556-1280
E-MAIL: diane.silva@navy.mil

Reporting Limits Outlier Report (detected results reported below the reporting limit)

Lab Report Batch: 61896 **Lab ID:** APCL

Client Sample ID	Lab Sample ID	Analysis Method	Matrix	Analyte Name	Lab Qualifier	Result	EDD Reporting Limit	Units
16_MW3-123	06-1896-1	8015B GRO	AQ	PHC AS GASOLINE	J	0.04	0.05	mg/L

LDC #: 14811A1

SDG #: 06-1896

Laboratory: Applied Physics & Chemistry Laboratory

VALIDATION COMPLETENESS WORKSHEET

Level ~~III/IV~~ ADR

Date: 4/11/06

Page: 1 of 1

Reviewer: Q

2nd Reviewer:

METHOD: GC/MS Volatiles (EPA CLP SOW OLM04.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3/23/06, ~~3/2~~ 3/22/06
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	
IV.	Continuing calibration	SW	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	None / P
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	Not reviewed for Level III validation.
XII.	Compound quantitation/CRQLs	A	Not reviewed for Level III validation.
XIII.	Tentitatively identified compounds (TICs)	A	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	ND	TB = 4

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

1	16_MW3-123 W	11	06FKTIMB01	21		31	
2	16_MW8-123**	12		22		32	
3	16_MW13-123	13		23		33	
4	BT6-923	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA SW 846 Method 8260B)

A. Chloromethane*	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC.1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl choride**	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform*	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene**	BB. 1,1,2,2-Tetrachloroethane*	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane*	CC. Toluene**	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene*	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL.
K. Chloroform**	EE. Ethylbenzene**	YY. n-Propylbenzene	SSS. o-Xylene	MMMM.
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNN.
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO.
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane**	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

* = System performance check compounds (SPCC) for RRF ; ** = Calibration check compounds (CCC) for %RSD.

LDC #: 14811A1
SDG #: 06-1896

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?

Y N N/A Were all percent differences (%D) ≤ 25% and relative response factors (RRF) ≥ 0.05?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤25.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
	3/29/06	4HT1Q01	JJ	30.4		All + Blk	J/UJ/P A
			D	40.3			
			I **	26.3			
			M	81.9			
			Q	40.1			
			AA **	26.0			
			S **		0.266 (≥0.30)		~~None~~ / [illegible]
		** CCC (≤20%)					

CONCAL.1C4

Enclosure II

EPA Level IV Validation Reports

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro, CTO 084

Collection Date: March 23, 2006

LDC Report Date: April 11, 2006

Matrix: Water

Parameters: Volatiles

Validation Level: NFESC Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 06-1896

Sample Identification

16_MW8-123

Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Contract Laboratory Program Statement of Work (SOW) OLM04.1 for Volatiles.

This review follows USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999); the following subsections correlate to the above guidelines.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

U	Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
J	Indicates an estimated value.
R	Quality control indicates the data is not usable.
N	Presumptive evidence of presence of the constituent.
UJ	Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
A	Indicates the finding is based upon technical validation criteria.
P	Indicates the finding is related to a protocol/contractual deviation.
None	Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds.

Average relative response factors (RRF) for all volatile target compounds and system monitoring compounds were within validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
3/29/06	Dichlorodifluoromethane Chloroethane 1,1-Dichloroethane 2-Butanone 1,2-Dichloropropane Tetrachloroethene	30.4 40.3 26.3 81.9 40.1 26.0	All samples in SDG 06-1896	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values were within validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

No field blanks were identified in this SDG.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the SOW. All surrogate recoveries were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Although laboratory control samples were not required by the method, laboratory control samples were reported by the laboratory. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

All tentatively identified compounds were within validation criteria.

XIV. System Performance

The system performance was within validation criteria.

XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

MCAS El Toro, CTO 084
Volatiles - Data Qualification Summary - SDG 06-1896

SDG	Sample	Compound	Flag	A or P	Reason
06-1896	16_MW8-123	Dichlorodifluoromethane Chloroethane 1,1-Dichloroethane 2-Butanone 1,2-Dichloropropane Tetrachloroethene	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)

MCAS El Toro, CTO 084
Volatiles - Laboratory Blank Data Qualification Summary - SDG 06-1896

No Sample Data Qualified in this SDG

MCAS El Toro, CTO 084
Volatiles - Field Blank Data Qualification Summary - SDG 06-1896

No Sample Data Qualified in this SDG

LDC #: 14811A1 **VALIDATION COMPLETENESS WORKSHEET** Date: 4/11/06

SDG #: 06-1896 Level ~~III/IV~~ IV Page: 1 of 1

Laboratory: Applied Physics & Chemistry Laboratory Reviewer: Q

2nd Reviewer: [illegible]

METHOD: GC/MS Volatiles (EPA CLP SOW OLM04.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3/23/06, ~~[illegible]~~
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	
IV.	Continuing calibration	SW	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	~~N~~ A	~~None / A~~ 02-NEW2-123 (06-1875)
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	Not reviewed for Level III validation.
XII.	Compound quantitation/CRQLs	A	Not reviewed for Level III validation.
XIII.	Tentitatively identified compounds (TICs)	A	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; R = Rinsate; ND = No compounds detected; FB = Field blank; TB = Trip blank; D = Duplicate; EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

1	~~16_MW3-123~~ W	11	06GKTIMB01	21		31	
2	16_MW8-123**	12		22		32	
3	~~16_MW13-123~~	13		23		33	
4	~~BT6-923~~	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

LDC #: 14811A1
SDG #: 06-1896

VALIDATION FINDINGS CHECKLIST

Reviewer: q
2nd Reviewer: [illegible]

Method: Volatiles (EPA CLP SOW OLM0~~3.1~~ 4.2)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS Instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) $\leq$ 30% and relative response factors (RRF) $\geq$ 0.05?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) $\leq$ 25% and relative response factors (RRF) $\geq$ 0.05?		✓		
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within QC limits?	✓			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.		✓		
Was a MS/MSD analyzed every 20 samples of each matrix?		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per analytical batch?	✓			

LDC #: 14811A1
SDG #: 06-1896

VALIDATION FINDINGS CHECKLIST

Reviewer: [illegible]
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds of the associated calibration standard?	✓			
XI. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XII. Compound quantitation/CRQLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			✓	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			✓	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target compounds were detected in the field duplicates.			✓	

LDC #: 14811A1
SDG #: 06-1896

VALIDATION FINDINGS CHECKLIST

Reviewer:
2nd Reviewer:

Validation Area	Yes	No	NA	Findings/Comments
XVII. Field blanks				
Field blanks were identified in this SDG.		✓		
Target compounds were detected in the field blanks.			✓	

TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA CLP SOW OLM04.2)

A. Chloromethane*	Q. 1,2-Dichloropropane**	GG. Xylenes, total	WW. Bromobenzene	MMM. Naphthalene
B. Bromomethane	R. cis-1,3-Dichloropropene	HH. Vinyl acetate	XX. 1,2,3-Trichloropropane	NNN. 1,2,3-Trichlorobenzene
C. Vinyl choride**	S. Trichloroethene	II. 2-Chloroethylvinyl ether	YY. n-Propylbenzene	OOO. 1,3,5-Trichlorobenzene
D. Chloroethane	T. Dibromochloromethane	JJ. Dichlorodifluoromethane	ZZ. 2-Chlorotoluene	PPP. trans-1,2-Dichloroethene
E. Methylene chloride	U. 1,1,2-Trichloroethane	KK. Trichlorofluoromethane	AAA. 1,3,5-Trimethylbenzene	QQQ. cis-1,2-Dichloroethene
F. Acetone	V. Benzene	LL. Methyl-tert-butyl ether	BBB. 4-Chlorotoluene	RRR. m,p-Xylenes
G. Carbon disulfide	W. trans-1,3-Dichloropropene	MM. 1,2-Dibromo-3-chloropropane	CCC. tert-Butylbenzene	SSS. o-Xylene
H. 1,1-Dichloroethene**	X. Bromoform*	NN. Diethyl ether	DDD. 1,2,4-Trimethylbenzene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane
I. 1,1-Dichloroethane*	Y. 4-Methyl-2-pentanone	OO. 2,2-Dichloropropane	EEE. sec-Butylbenzene	UUU. Benzyl chloride
J. 1,2-Dichloroethene, total	Z. 2-Hexanone	PP. Bromochloromethane	FFF. 1,3-Dichlorobenzene	VVV. 4-Ethyltoluene
K. Chloroform**	AA. Tetrachloroethene	QQ. 1,1-Dichloropropene	GGG. p-Isopropyltoluene	WWW. Ethanol
L. 1,2-Dichloroethane	BB. 1,1,2,2-Tetrachloroethane*	RR. Dibromomethane	HHH. 1,4-Dichlorobenzene	XXX. Ethyl ether
M. 2-Butanone	CC. Toluene**	SS. 1,3-Dichloropropane	III. n-Butylbenzene	
N. 1,1,1-Trichloroethane	DD. Chlorobenzene*	TT. 1,2-Dibromoethane	JJJ. 1,2-Dichlorobenzene	
O. Carbon tetrachloride	EE. Ethylbenzene**	UU. 1,1,1,2-Tetrachloroethane	KKK. 1,2,4-Trichlorobenzene	
P. Bromodichloromethane	FF. Styrene	VV. Isopropylbenzene	LLL. Hexachlorobutadiene	

* = System performance check compounds (SPCC) for RRF ; ** = Calibration check compounds (CCC) for %RSD.

Notes:______________________________

LDC #: 15311A1
SDG #: 06-1896

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?

Y N N/A Were all percent differences (%D) ≤ 25% and relative response factors (RRF) ≥ 0.05?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤25.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
	3/29/06	FHT1Q01	YY	30.4		All + Blk	J/UJ/A
			D	40.3			
			I ~~**~~	26.3			
			M	81.9			
			Q	40.1			
			AA **	26.0			
			~~S **~~		~~0.266 (≥0.50)~~		~~None/P~~
		~~** CCC (20%D)~~					

CONCAL.1C4

LDC #: 14811A1
SDG #: 06-1896

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer:
2nd Reviewer:

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

RRF = $(A_x)(C_{is})/(A_{is})(C_x)$
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

A_x = Area of compound,
C_x = Concentration of compound,
S = Standard deviation of the RRFs
X = Mean of the RRFs

A_{is} = Area of associated internal standard
C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported RRF (10 std)	Recalculated RRF (10 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL	12/9/04	Methylene chloride (1st internal standard)	1.996	1.996	2.087	2.087	4.90	4.89
			Trichlorethene (2nd internal standard)	0.294	0.294	0.303	0.303	6.72	6.70
			Toluene (3rd internal standard)	1.507	1.507	1.518	1.518	4.46	4.46
2			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						
3			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						
4			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 4811A1
SDG #: 06-1896

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = $(A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (Initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	G14T1R01	3/29/06	Methylene chloride (1st internal standard)	2.087	2.160	2.160	3.5	3.5
			Trichlorethene (2nd internal standard)	0.303	0.266	0.266	12.0	12.1
			Toluene (3rd internal standard)	1.578	1.545	1.545	1.8	1.8
2			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					
3			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					
4			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14816 1
SDG #: 06-1896

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
Reviewer: [illegible]
2nd reviewer: [illegible]

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 2

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8	10	9.86	99	99	0
Bromofluorobenzene	↓	9.35	94	94	↓
1,2-Dichloroethane-d4	↓	10.52	105	105	↓

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					

LDC #: 14811A1
SDG #: 06-1896

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: 9
2nd reviewer:

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(DF)}{(A_{is})(RRF)(V_o)(\%S)}$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

RRF = Relative response factor of the calibration standard.

V_o = Volume or weight of sample pruged in milliliters (ml) or grams (g).

Df = Dilution factor.

%S = Percent solids, applicable to soils and solid matrices only.

Example:

Sample I.D. 2 , F113 :

Conc. = $\frac{(9401)(10)(1)}{(33878)(1.910)(\quad)(\quad)}$

= 1.45 µg/L

#	Sample ID	Compound	Reported Concentration ( )	Calculated Concentration ( )	Qualification

LDC Report# 14811A7

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro, CTO 084

Collection Date: March 23, 2006

LDC Report Date: April 11, 2006

Matrix: Water

Parameters: Total Petroleum Hydrocarbons as Gasoline

Validation Level: NFESC Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 06-1896

Sample Identification

16_MW8-123

Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Gasoline.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent difference (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as gasoline contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound	Concentration	Associated Samples
06G1460MB01	3/27/06	TPH as gasoline	0.02 mg/Kg	All samples in SDG 06-1896

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
16_MW8-123	TPH as gasoline	0.06 ug/L	0.06U ug/L

No field blanks were identified in this SDG.

IV. Accuracy and Precision Data

a. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

b. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

c. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Target Compound Identification

All target compound identifications were within validation criteria.

VI. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

VII. System Performance

The system performance was acceptable.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

IX. Field Duplicates

No field duplicates were identified in this SDG.

MCAS El Toro, CTO 084
Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG 06-1896

No Sample Data Qualified in this SDG

MCAS El Toro, CTO 084
Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification Summary - SDG 06-1896

SDG	Sample	Compound	Modified Final Concentration	A or P
06-1896	16_MW8-123	TPH as gasoline	0.06U ug/L	A

MCAS El Toro, CTO 084
Total Petroleum Hydrocarbons as Gasoline - Field Blank Data Qualification Summary - SDG 06-1896

No Sample Data Qualified in this SDG

LDC #: 14811A7 **VALIDATION COMPLETENESS WORKSHEET** Date: 4/11/06

SDG #: 06-1896 Level ~~III/IV~~ IV Page: 1 of 1

Laboratory: Applied Physics & Chemistry Laboratory Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC TPH as Gasoline (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	3/23/06
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	SW	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	LCS/D
V.	Target compound identification	A	Not reviewed for Level III validation.
VI.	Compound Quantitation and CRQLs	A	Not reviewed for Level III validation.
VII.	System Performance	A	Not reviewed for Level III validation.
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	N	

Note: A = Acceptable; ND = No compounds detected; D = Duplicate; N = Not provided/applicable; R = Rinsate; TB = Trip blank; SW = See worksheet; FB = Field blank; EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

1	~~16_MW3-123~~ W	11	06F1460MB01	21		31	
2	16_MW8-123**	12		22		32	
3	~~16_MW13-123~~	13		23		33	
4	~~16_MW3-123MS~~	14		24		34	
5	~~16_MW3-123MSD~~	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 14811A8
SDG #: 06-1896

VALIDATION FINDINGS CHECKLIST

Reviewer: Q
2nd Reviewer: J

Method: ✓ GC ______ HPLC

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Was a linear fit used for evaluation? If yes, were all percent relative standard deviations (%RSD) < 20%?	✓			
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?		✓		
Did the initial calibration meet the curve fit acceptance criteria?			✓	
Were the RT windows properly established?	✓			
IV. Continuing calibration				
What type of continuing calibration calculation was performed? ✓ %D or ____ %R	✓			
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) < 15%.0 or percent recoveries 85-115%?	✓			
Were all the retention times within the acceptance windows?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within the QC limits?	✓			
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.		✓		
Was a MS/MSD analyzed every 20 samples of each matrix?		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			

LDC #: 16811A48
SDG #: 06-1896

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2
Reviewer: [illegible]
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XI. Compound quantitation/CRQLs				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XII. System performance				
System performance was found to be acceptable.	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Were field duplicate pairs identified in this SDG?		✓		
Were target compounds idetected in the field duplicates?			✓	
XV. Field blanks				
Were field blanks identified in this SDG?		✓		
Were target compounds detected in the field blanks?			✓	

LDC #: 14811AT
SDG #: 06-1896

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: 9
2nd Reviewer: Q

METHOD: ✓ GC ___ HPLC

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were all samples associated with a given method blank?
Y N N/A Was a method blank performed for each matrix and whenever a sample extraction procedure was performed?
Y N N/A Was a method blank performed with each extraction batch?
Y N N/A Were any contaminants found in the method blanks? If yes, please see findings below.

Level IV/D Only

Y N N/A (Gasoline and aromatics only)Was a method blank analyzed with each 24 hour batch?
Y N N/A Was a method blank analyzed for each analytical / extraction batch of ≤20 samples?

Blank extraction date: ——— **Blank analysis date:** 3/27/06 **Associated samples:** All
Conc. units: mg/L

Compound	Blank ID	Sample Identification						
	06F1460MB01	1	2	3				
GRO	0.02	~~0.04~~ 0.05U	~~0.06~~ U	~~0.05~~ U				

Blank extraction date: _______ **Blank analysis date:** _______ **Associated samples:** _______
Conc. units: _______

Compound	Blank ID	Sample Identification						

ALL CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: K811A8
SDG #: 06-1896

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: Q
2nd Reviewer: Q

METHOD: GC ✓ HPLC ______

The calibration Factor (CF), average CF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

CF = A/C
average CF = sum of the CF/number of standards
%RSD = 100 * (S/X)

A = Area of compound,
C = Concentration of compound,
S = Standard deviation of the CF
X = Mean of the CFs

#	Standard ID	Calibration Date	Compound	Reported CF (50 std)	Recalculated CF (50 std)	Reported Average CF (initial)	Recalculated Average CF (initial)	Reported %RSD	Recalculated %RSD
1	ICAL	12/20/05	DRO	10116.64	10110.64	12663.6	12663.6	10.407	10.407
2									
3									
4									

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14811A8
SDG #: 06-1896

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: 9
2nd Reviewer: ≤

METHOD: GC √ HPLC ____

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration CF were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. CF - CF)/ave. CF
CF = A/C

Where: ave. CF = initial calibration average CF
CF = continuing calibration CF
A = Area of compound
C = Concentration of compound

#	Standard ID	Calibration Date	Compound	Average CF(Ical)/ CCV Conc.	Reported CF/Conc. CCV	Recalculated CF/Conc. CCV	Reported %D	Recalculated %D
1	7452F.103	3/28/06	DRO	1000	989	989	1	1
2								
3								
4								

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14811A8
SDG #: 06-1896

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
Reviewer: [illegible]
2nd reviewer: [illegible]

METHOD: ✓ GC __ HPLC

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 2

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
N-Octacosane	NA	50	52.200	104	104	0

Sample ID:

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

Sample ID:

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

LDC #: 14811A8
SDG #: 06-1896

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: [illegible]
2nd Reviewer: [illegible]

____METHOD: ✓ GC __HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC - SC)/SA

RPD =(((SSCLCS - SSCLCSD) * 2) / (SSCLCS + SSCLCSD))*100

Where SSC = Spiked sample concentration
SA = Spike added
LCS = Laboratory Control Sample
SC = Sample concentration
LCSD = Laboratory Control Sample duplicate

LCS/LCSD samples: 145[illegible] 601/401

Compound	Spike Added (mg/L)		Sample Conc. (mg/L)	Spike Sample Concentration (mg/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	—	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)											
Diesel (8015)	1	1	—	1.08	1.08	108	108	108	108	0	—
Benzene (8021B)											
Methane (RSK-175)											
2,4-D (8151)											
Dinoseb (8151)											
Naphthalene (8310)											
Anthracene (8310)											
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: ~~14814A8~~
SDG #: 06-1896

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: 2

METHOD: ✓ GC ___ HPLC

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10% of the reported results?

Concentration= $\frac{(A)(Fv)(Df)}{(RF)(Vs \text{ or } Ws)(\%S/100)}$

A= Area or height of the compound to be measured
Fv= Final Volume of extract
Df= Dilution Factor
RF= Average response factor of the compound in the initial calibration
Vs= Initial volume of the sample
Ws= Initial weight of the sample
%S= Percent Solid

Example:

Sample ID. N/D Compound Name ______

Concentration = ______

#	Sample ID	Compound	Reported Concentrations ( )	Recalculated Results Concentrations ( )	Qualifications

Comments: ______

LDC Report# 14811A8

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	MCAS El Toro, CTO 084
Collection Date:	March 23, 2006
LDC Report Date:	April 11, 2006
Matrix:	Water
Parameters:	Total Petroleum Hydrocarbons as Diesel
Validation Level:	NFESC Level IV
Laboratory:	Applied P & Ch Laboratory
Sample Delivery Group (SDG):	06-1896

Sample Identification

16_MW8-123

Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Diesel.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent difference (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as diesel contaminants were found in the method blanks.

No field blanks were identified in this SDG.

IV. Accuracy and Precision Data

a. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

b. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG 06-1896	TPH as diesel	No MS/MSD associated with these samples.	MS/MSD required.	None	P

c. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Target Compound Identification

All target compound identifications were within validation criteria.

VI. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

VII. System Performance

The system performance was acceptable.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

IX. Field Duplicates

No field duplicates were identified in this SDG.

MCAS El Toro, CTO 084
Total Petroleum Hydrocarbons as Diesel - Data Qualification Summary - SDG 06-1896

SDG	Sample	Compound	Flag	A or P	Reason
06-1896	16_MW8-123	TPH as diesel	None	P	Matrix spike/Matrix spike duplicates

MCAS El Toro, CTO 084
Total Petroleum Hydrocarbons as Diesel - Laboratory Blank Data Qualification Summary - SDG 06-1896

No Sample Data Qualified in this SDG

MCAS El Toro, CTO 084
Total Petroleum Hydrocarbons as Diesel - Field Blank Data Qualification Summary - SDG 06-1896

No Sample Data Qualified in this SDG

LDC #: 14811A8

SDG #: 06-1896

Laboratory: Applied Physics & Chemistry Laboratory

VALIDATION COMPLETENESS WORKSHEET

Level ~~III/IV~~ IV

Date: 4/11/06

Page: 1 of 1

Reviewer: Q

2nd Reviewer: J

METHOD: GC TPH as Diesel (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	3/23/06
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	N	None / P
IVc.	Laboratory control samples	A	LCS / D
V.	Target compound identification	A	Not reviewed for Level III validation.
VI.	Compound Quantitation and CRQLs	A	Not reviewed for Level III validation.
VII.	System Performance	A	Not reviewed for Level III validation.
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

1	~~16_MW3-123~~	11	06E145MB01	21		31	
2	16_MW8-123**	12		22		32	
3	~~16_MW13-123~~	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 14811A7
SDG #: 06-1896

VALIDATION FINDINGS CHECKLIST

Reviewer: Q
2nd Reviewer: P

Method: ✓ GC ____ HPLC

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Was a linear fit used for evaluation? If yes, were all percent relative standard deviations (%RSD) < 20%?	✓			
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?		✓		
Did the initial calibration meet the curve fit acceptance criteria?			✓	
Were the RT windows properly established?	✓			
IV. Continuing calibration				
What type of continuing calibration calculation was performed? ✓ %D or ___ %R	✓			
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) < 15%.0 or percent recoveries 85-115%?	✓			
Were all the retention times within the acceptance windows?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within the QC limits?	✓			
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓			
Was a MS/MSD analyzed every 20 samples of each matrix?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			

LDC #: 14811A7
SDG #: 06-1896

VALIDATION FINDINGS CHECKLIST

Reviewer: Q
2nd Reviewer: Q

Validation Area	Yes	No	NA	Findings/Comments
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XI. Compound quantitation/CRQLs				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XII. System performance				
System performance was found to be acceptable.	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Were field duplicate pairs identified in this SDG?		✓		
Were target compounds idetected in the field duplicates?			✓	
XV. Field blanks				
Were field blanks identified in this SDG?		✓		
Were target compounds detected in the field blanks?			✓	

LDC #: 14811AT
SDG #: 06-1896

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC ✓ HPLC ____

The calibration Factor (CF), average CF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

CF = A/C
average CF = sum of the CF/number of standards
%RSD = 100 * (S/X)

A = Area of compound,
C = Concentration of compound,
S = Standard deviation of the CF
X = Mean of the CFs

#	Standard ID	Calibration Date	Compound	Reported CF (50 std)	Recalculated CF (50 std)	Reported Average CF (initial)	Recalculated Average CF (initial)	Reported %RSD	Recalculated %RSD
1	ICAL	12/19/05	D ERO	29164.54	29164.59	25919.3	25919.3	7.892	7.892
2									
3									
4									

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14811AT
SDG #: 06-1896

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: Q
2nd Reviewer: R

METHOD: GC ✓ HPLC ____

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration CF were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. CF - CF)/ave. CF
CF = A/C

Where: ave. CF = Initial calibration average CF
CF = continuing calibration CF
A = Area of compound
C = Concentration of compound

#	Standard ID	Calibration Date	Compound	Average CF(Ical)/ CCV Conc.	Reported CF/Conc. CCV	Recalculated CF/Conc. CCV	Reported %D	Recalculated %D
1	1460F.1102	3/27/06	EPO	.1	0.993	0.993	1	1
2								
3								
4								

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14811A7
SDG #: 06-1896

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
Reviewer: Q
2nd reviewer: Q

METHOD: ✓ GC ___ HPLC

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 2

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
BFB	NA	100	112	112	112	0

Sample ID:

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference

Sample ID:

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference

LDC #: 14811AT
SDG #: 06-1896

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: 9
2nd Reviewer: Q

METHOD: ✓ GC ___HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC - SC)/SA   Where   SSC = Spiked sample concentration   SC = Sample concentration
SA = Spike added

RPD =(((SSCMS - SSCMSD} * 2) / (SSCMS + SSCMSD))*100   MS = Matrix spike   MSD = Matrix spike duplicate

MS/MSD samples: 4/5

Compound	Spike Added (mg/L)		Sample Conc. (mg/L)	Spike Sample Concentration (mg/L)		Matrix spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	—	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)	1	1	0.04 ~~.05~~	1.11	1.14	107	107	110	110	3	3
Diesel (8015)											
Benzene (8021B)											
Methane (RSK-175)											
2,4-D (8151)											
Dinoseb (8151)											
Naphthalene (8310)											
Anthracene (8310)											
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14811AT
SDG #: 06-1896

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: 9
2nd Reviewer: 2

____METHOD: √ GC __HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC - SC)/SA   Where SSC = Spiked sample concentration   SC = Sample concentration
SA = Spike added
RPD =(((SSCLCS - SSCLCSD) * 2) / (SSCLCS + SSCLCSD))*100   LCS = Laboratory Control Sample   LCSD = Laboratory Control Sample duplicate

LCS/LCSD samples: T460F.L01/L01

Compound	Spike Added (mg/L)		Sample Conc. (mg/L)	Spike Sample Concentration (mg/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD		LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)	1	1	ND	1.09	1.05	109	109	105	105	4	4
Diesel (8015)											
Benzene (8021B)											
Methane (RSK-175)											
2,4-D (8151)											
Dinoseb (8151)											
Naphthalene (8310)											
Anthracene (8310)											
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14811BT
SDG #: 06-1896

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: Q
2nd Reviewer: Q

METHOD: √ **GC** __ **HPLC**

Y N N/A — Were all reported results recalculated and verified for all level IV samples?
Y/N N/A — Were all recalculated results for detected target compounds agree within 10% of the reported results?

Concentration= $\dfrac{(A)(Fv)(Df)}{(RF)(Vs\ or\ Ws)(\%S/100)}$

A= Area or height of the compound to be measured
Fv= Final Volume of extract
Df= Dilution Factor
RF= Average response factor of the compound in the initial calibration
Vs= Initial volume of the sample
Ws= Initial weight of the sample
%S= Percent Solid

Example:

Sample ID. 2 Compound Name GRO

Concentration = $\dfrac{(1624185)(1)}{(25919.3)(1000)}$

= 0.063 mg/L

#	Sample ID	Compound	Reported Concentrations ( )	Recalculated Results Concentrations ( )	Qualifications

Comments: ______________________

LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

CDM Federal
9444 Farnham Street, Suite 210
San Diego, CA 92123
ATTN: Mr. Michael Higman

April 13, 2006

SUBJECT: MCAS El Toro CTO 084, Data Validation

Dear Mr. Higman,

Enclosed is the final validation report and Excel qualification sheet for the fractions listed below. This SDG were received on April 10th, 2006.

LDC project# 14820:

SDG #	Fraction
06-1875	Volatiles (Method CLP SOW OLM04.1) Metals (Method CLP SOW ILM04.2) Wet Chemistry (Method EPA 300.0, 310.1 and 160.1)

The following deliverables are submitted under this report:

- Attachment I — Sample ID Cross Reference and Data Review Level
- Attachment II — Overall Data Qualification Summary
- Attachment III — CDM Database Qualification Summary
- Enclosure I — EPA Level III ADR Outliers (including manual review outliers)
- Enclosure II — EPA Level IV DVR (manual review)

The data validation was performed in accordance to the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999 and for Inorganic Data Review, October 2004. Where specific guidance is not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience. The following items were evaluated during the review:

- Holding Times
- Sample Preservation
- Cooler Temperatures
- Initial Calibration (Manual Review)
- Continuing Calibration (Manual Review)
- Blanks
- Surrogates
- Internal Standards (Manual Review)
- Matrix Spike/Matrix Spike Duplicates
- Laboratory Control Samples

- Detection and Quantitation Limits
- Field QC Samples

Please feel free to contact us if you have any questions.

Sincerely,

Erlinda T. Rauto
Operations Manager/Senior Chemist

Attachment I

Sample ID Cross Reference and Data Review Level

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
21-Mar-2006	02_DGMW59-123	06-1875-3	N	3010A	CLP-Metal	IV
21-Mar-2006	02_DGMW59-123	06-1875-3	N	5030B	CLP-VOC	IV
21-Mar-2006	02_DGMW59-123	06-1875-3	N	7470A	CLP-Metal	IV
21-Mar-2006	02_DGMW59-123DUP	06-1875-3MD	DUP	3010A	CLP-Metal	III
21-Mar-2006	02_DGMW59-123DUP	06-1875-3MD	DUP	7470A	CLP-Metal	III
21-Mar-2006	02_DGMW59-123MS	06-1875-3MS	MS	3010A	CLP-Metal	III
21-Mar-2006	02_DGMW59-123MS	06-1875-3MS	MS	5030B	CLP-VOC	III
21-Mar-2006	02_DGMW59-123MS	06-1875-3MS	MS	7470A	CLP-Metal	III
21-Mar-2006	02_DGMW59-123MSD	06-1875-3MSD	MSD	5030B	CLP-VOC	III
21-Mar-2006	02_DGMW59-123	06-1875-3RE	N	3010A	CLP-Metal	IV
21-Mar-2006	02_NEW11-123	06-1875-5	N	3010A	CLP-Metal	III
21-Mar-2006	02_NEW11-123	06-1875-5	N	5030B	CLP-VOC	III
21-Mar-2006	02_NEW11-123	06-1875-5	N	7470A	CLP-Metal	III
21-Mar-2006	02_NEW11-123	06-1875-5RE	N	3010A	CLP-Metal	III
21-Mar-2006	BT4-923	06-1875-7	TB	5030B	CLP-VOC	III
22-Mar-2006	02NEW15-123	06-1875-1	N	3010A	CLP-Metal	III
22-Mar-2006	02NEW15-123	06-1875-1	N	5030B	CLP-VOC	III
22-Mar-2006	02NEW15-123	06-1875-1	N	7470A	CLP-Metal	III
22-Mar-2006	02NEW15-123	06-1875-1RE	N	3010A	CLP-Metal	III
22-Mar-2006	02_NEW2-123	06-1875-4	N	3010A	CLP-Metal	IV
22-Mar-2006	02_NEW2-123	06-1875-4	N	5030B	CLP-VOC	IV
22-Mar-2006	02_NEW2-123	06-1875-4	N	7470A	CLP-Metal	IV
22-Mar-2006	02_NEW2-123MS	06-1875-4MS	MS	5030B	CLP-VOC	III
22-Mar-2006	02_NEW2-123MSD	06-1875-4MSD	MSD	5030B	CLP-VOC	III
22-Mar-2006	02_NEW2-123	06-1875-4RE	N	3010A	CLP-Metal	IV
22-Mar-2006	BT5-923	06-1875-8	TB	5030B	CLP-VOC	III

III = EPA Level 3 Data Review
IV = EPA Level 4 Data Validation
N = Normal Sample
FD = Field Duplicate
TB = Trip Blank
FB = Field Blank
MS = Matrix Spike
MSD = Matrix Spike Duplicate

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
22-Mar-2006	02NEW16-123	06-1875-2	N	3010A	CLP-Metal	III
22-Mar-2006	02NEW16-123	06-1875-2	N	5030B	CLP-VOC	III
22-Mar-2006	02NEW16-123	06-1875-2	N	7470A	CLP-Metal	III
22-Mar-2006	02NEW16-123	06-1875-2	N	GEN PREP	160.1	III
22-Mar-2006	02NEW16-123	06-1875-2	N	GEN PREP	300.0	III
22-Mar-2006	02NEW16-123	06-1875-2	N	GEN PREP	310.1	III
22-Mar-2006	02NEW16-123	06-1875-2RE	N	3010A	CLP-Metal	III
22-Mar-2006	17_DGMW82-123	06-1875-6	N	3010A	CLP-Metal	III
22-Mar-2006	17_DGMW82-123	06-1875-6	N	5030B	CLP-VOC	III
22-Mar-2006	17_DGMW82-123	06-1875-6	N	7470A	CLP-Metal	III
22-Mar-2006	17_DGMW82-123	06-1875-6	N	GEN PREP	160.1	III
22-Mar-2006	17_DGMW82-123	06-1875-6	N	GEN PREP	300.0	III
22-Mar-2006	17_DGMW82-123	06-1875-6	N	GEN PREP	310.1	III
22-Mar-2006	17_DGMW82-123	06-1875-6RE	N	3010A	CLP-Metal	III

III = EPA Level 3 Data Review
IV = EPA Level 4 Data Validation
N = Normal Sample
FD = Field Duplicate
TB = Trip Blank
FB = Field Blank
MS = Matrix Spike
MSD = Matrix Spike Duplicate

Attachment II

Overall Data Qualification Summary

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 61875										
CLP-Metal	02_DGMW59-123	AQ	N							
				ARSENIC	10	5.6B		U	ug/L	
				BARIUM	200	134B		J	ug/L	
				CHROMIUM	10	3.5B		J	ug/L	
				COPPER	25	11.8B		J	ug/L	
				IRON	100	24.3B		U	ug/L	
				MERCURY	0.2	0.059B		U	ug/L	
				NICKEL	40	5.4B		J	ug/L	
				POTASSIUM	5000	1670B		J	ug/L	
				VANADIUM	50	9.0B		J	ug/L	
				ZINC	20	12.1B		J	ug/L	
CLP-Metal	02_NEW11-123	AQ	N							
				ALUMINUM	200	25.0B		J	ug/L	
				ARSENIC	10	6.6B		U	ug/L	
				BARIUM	200	107B		J	ug/L	
				CHROMIUM	10	1.8B		J	ug/L	
				COPPER	25	14.9B		J	ug/L	
				IRON	100	32.2B		J	ug/L	
				MANGANESE	15	9.2B		J	ug/L	
				MERCURY	0.2	0.068B		U	ug/L	
				POTASSIUM	5000	3410B		J	ug/L	
				THALLIUM	10	3.8B		U	ug/L	
				VANADIUM	50	9.2B		J	ug/L	
				ZINC	20	11.6B		J	ug/L	

N = Normal Sample TB = Trip Blank
FD = Field Duplicate FB = Field Blank

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 61875										
CLP-Metal	02_NEW2-123	AQ	N							
				ALUMINUM	200	26.6B		J	ug/L	
				ARSENIC	10	6.0B		U	ug/L	
				BARIUM	200	94.4B		J	ug/L	
				CADMIUM	5	0.53B		U	ug/L	
				CHROMIUM	10	4.0B		J	ug/L	
				COPPER	25	14.7B		J	ug/L	
				IRON	100	41.9B		J	ug/L	
				LEAD	3	2.9B		U	ug/L	
				MANGANESE	15	1.4B		U	ug/L	
				MERCURY	0.2	0.088B		U	ug/L	
				NICKEL	40	2.4B		J	ug/L	
				POTASSIUM	5000	1760B		J	ug/L	
				THALLIUM	10	3.7B		U	ug/L	
				VANADIUM	50	14.4B		J	ug/L	
				ZINC	20	11.0B		J	ug/L	
CLP-Metal	02NEW15-123	AQ	N							
				ALUMINUM	200	28.0B		J	ug/L	
				ARSENIC	10	6.7B		U	ug/L	
				BARIUM	200	59.3B		J	ug/L	
				CHROMIUM	10	2.7B		J	ug/L	
				COPPER	25	15.1B		J	ug/L	
				IRON	100	38.7B		J	ug/L	
				LEAD	3	1.6B		U	ug/L	
				MERCURY	0.2	0.065B		U	ug/L	
				NICKEL	40	24.9B		J	ug/L	
				POTASSIUM	5000	2270B		J	ug/L	
				THALLIUM	10	2.3B		U	ug/L	
				VANADIUM	50	11.4B		J	ug/L	
				ZINC	20	10.7B		J	ug/L	

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 61875										
CLP-Metal	02NEW16-123	AQ	N							
				ALUMINUM	200	20.6B		J	ug/L	
				ARSENIC	10	5.1B		U	ug/L	
				BARIUM	200	142B		J	ug/L	
				CHROMIUM	10	1.9B		J	ug/L	
				COPPER	25	12.5B		J	ug/L	
				IRON	100	27.6B		J	ug/L	
				MERCURY	0.2	0.061B		U	ug/L	
				POTASSIUM	5000	1070B		J	ug/L	
				THALLIUM	10	2.1B		U	ug/L	
				VANADIUM	50	16.0B		J	ug/L	
				ZINC	20	7.1B		J	ug/L	
CLP-Metal	17_DGMW82-123	AQ	N							
				ALUMINUM	200	20.2B		J	ug/L	
				ARSENIC	10	3.6B		U	ug/L	
				BARIUM	200	41.5B		J	ug/L	
				CHROMIUM	10	2.7B		J	ug/L	
				COBALT	50	2.5B		J	ug/L	
				COPPER	25	4.8B		J	ug/L	
				IRON	100	56.3B		J	ug/L	
				MERCURY	0.2	0.056B		U	ug/L	
				POTASSIUM	5000	4340B		J	ug/L	
				THALLIUM	10	4.1B		U	ug/L	
				VANADIUM	50	6.3B		J	ug/L	
				ZINC	20	10.3B		J	ug/L	

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 61875										
CLP-VOC	02_DGMW59-123	AQ	N							
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				1,3-DICHLOROBENZENE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				2-HEXANONE	10	10U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
				TETRACHLOROETHENE	1	1U		UJ	ug/L	
CLP-VOC	02_NEW11-123	AQ	N							
				1,1-DICHLOROETHANE	1	1U		UJ	ug/L	
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
				TETRACHLOROETHENE	1	1U		UJ	ug/L	
CLP-VOC	02_NEW2-123	AQ	N							
				1,1-DICHLOROETHANE	1	1U		UJ	ug/L	
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
				TETRACHLOROETHENE	1	1U		UJ	ug/L	
CLP-VOC	02NEW15-123	AQ	N							
				1,1-DICHLOROETHANE	1	1U		UJ	ug/L	
				1,2-DICHLOROBENZENE	1	0.7J		J	ug/L	
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				1,4-DICHLOROBENZENE	1	0.7J		J	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				CHLOROBENZENE	1	0.5J		J	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
				TETRACHLOROETHENE	1	1U		UJ	ug/L	

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 61875										
CLP-VOC	02NEW16-123	AQ	N							
				1,1-DICHLOROETHANE	1	1U		UJ	ug/L	
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
				TETRACHLOROETHENE	1	1U		UJ	ug/L	
CLP-VOC	17_DGMW82-123	AQ	N							
				1,1-DICHLOROETHANE	1	1U		UJ	ug/L	
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
				TETRACHLOROETHENE	1	1U		UJ	ug/L	
CLP-VOC	BT4-923	AQ	TB							
				1,1-DICHLOROETHANE	1	1U		UJ	ug/L	
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
				TETRACHLOROETHENE	1	1U		UJ	ug/L	
CLP-VOC	BT5-923	AQ	TB							
				1,1-DICHLOROETHANE	1	1U		UJ	ug/L	
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
				TETRACHLOROETHENE	1	1U		UJ	ug/L	

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Attachment III

CDM Database Qualification Summary

Project No # : 14820

CDM Federal Programs Corporation

Reason for Qualified Results

SDG Nos. : 61875

Sample Del Group (SDG)	Sample ID	Test Method	CAS No.	Detected Qualifier	Non Detected Qualifier	Analyte Name	Reason
61875	02_DGMW59-123	CLP-Metal	7440382	U		ARSENIC	Present in method blank
61875	02_DGMW59-123	CLP-Metal	7439896	U		IRON	Present in method blank
61875	02_DGMW59-123	CLP-Metal	7439976	U		MERCURY	Present in method blank
61875	02_DGMW59-123	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61875	02_DGMW59-123	CLP-VOC	541731		J	1,3-DICHLOROBENZENE	Continuing calibration percent difference
61875	02_DGMW59-123	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61875	02_DGMW59-123	CLP-VOC	591786		J	2-HEXANONE	Continuing calibration percent difference
61875	02_DGMW59-123	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61875	02_DGMW59-123	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61875	02_DGMW59-123	CLP-VOC	127184		J	TETRACHLOROETHENE	Continuing calibration percent difference
61875	02_NEW11-123	CLP-Metal	7440382	U		ARSENIC	Present in method blank
61875	02_NEW11-123	CLP-Metal	7439976	U		MERCURY	Present in method blank
61875	02_NEW11-123	CLP-Metal	7440280	U		THALLIUM	Present in method blank
61875	02_NEW11-123	CLP-VOC	75343		J	1,1-DICHLOROETHANE	Continuing calibration percent difference
61875	02_NEW11-123	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61875	02_NEW11-123	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61875	02_NEW11-123	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61875	02_NEW11-123	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61875	02_NEW11-123	CLP-VOC	127184		J	TETRACHLOROETHENE	Continuing calibration percent difference
61875	02_NEW2-123	CLP-Metal	7440382	U		ARSENIC	Present in method blank
61875	02_NEW2-123	CLP-Metal	7440439	U		CADMIUM	Present in method blank
61875	02_NEW2-123	CLP-Metal	7439921	U		LEAD	Present in method blank
61875	02_NEW2-123	CLP-Metal	7439965	U		MANGANESE	Present in method blank
61875	02_NEW2-123	CLP-Metal	7439976	U		MERCURY	Present in method blank
61875	02_NEW2-123	CLP-Metal	7440280	U		THALLIUM	Present in method blank
61875	02_NEW2-123	CLP-VOC	75343		J	1,1-DICHLOROETHANE	Continuing calibration percent difference
61875	02_NEW2-123	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61875	02_NEW2-123	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61875	02_NEW2-123	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61875	02_NEW2-123	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61875	02_NEW2-123	CLP-VOC	127184		J	TETRACHLOROETHENE	Continuing calibration percent difference
61875	02NEW15-123	CLP-Metal	7440382	U		ARSENIC	Present in method blank

CDM Federal Programs Corporation

Reason for Qualified Results

SDG Nos. : 61875

Sample Del Group (SDG)	Sample ID	Test Method	CAS No.	Detected Qualifier	Non Detected Qualifier	Analyte Name	Reason
61875	02NEW15-123	CLP-Metal	7439921	U		LEAD	Present in method blank
61875	02NEW15-123	CLP-Metal	7439976	U		MERCURY	Present in method blank
61875	02NEW15-123	CLP-Metal	7440280	U		THALLIUM	Present in method blank
61875	02NEW15-123	CLP-VOC	75343		J	1,1-DICHLOROETHANE	Continuing calibration percent difference
61875	02NEW15-123	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61875	02NEW15-123	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61875	02NEW15-123	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61875	02NEW15-123	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61875	02NEW15-123	CLP-VOC	127184		J	TETRACHLOROETHENE	Continuing calibration percent difference
61875	02NEW16-123	CLP-Metal	7440382	U		ARSENIC	Present in method blank
61875	02NEW16-123	CLP-Metal	7439976	U		MERCURY	Present in method blank
61875	02NEW16-123	CLP-Metal	7440280	U		THALLIUM	Present in method blank
61875	02NEW16-123	CLP-VOC	75343		J	1,1-DICHLOROETHANE	Continuing calibration percent difference
61875	02NEW16-123	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61875	02NEW16-123	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61875	02NEW16-123	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61875	02NEW16-123	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61875	02NEW16-123	CLP-VOC	127184		J	TETRACHLOROETHENE	Continuing calibration percent difference
61875	17_DGMW82-123	CLP-Metal	7440382	U		ARSENIC	Present in method blank
61875	17_DGMW82-123	CLP-Metal	7439976	U		MERCURY	Present in method blank
61875	17_DGMW82-123	CLP-Metal	7440280	U		THALLIUM	Present in method blank
61875	17_DGMW82-123	CLP-VOC	75343		J	1,1-DICHLOROETHANE	Continuing calibration percent difference
61875	17_DGMW82-123	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61875	17_DGMW82-123	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61875	17_DGMW82-123	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61875	17_DGMW82-123	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61875	17_DGMW82-123	CLP-VOC	127184		J	TETRACHLOROETHENE	Continuing calibration percent difference
61875	BT4-923	CLP-VOC	75343		J	1,1-DICHLOROETHANE	Continuing calibration percent difference
61875	BT4-923	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61875	BT4-923	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61875	BT4-923	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61875	BT4-923	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference

Project No # : 14820

CDM Federal Programs Corporation

Reason for Qualified Results

SDG Nos. : 61875

Sample Del Group (SDG)	Sample ID	Test Method	CAS No.	Detected Qualifier	Non Detected Qualifier	Analyte Name	Reason
61875	BT4-923	CLP-VOC	127184		J	TETRACHLOROETHENE	Continuing calibration percent difference
61875	BT5-923	CLP-VOC	75343		J	1,1-DICHLOROETHANE	Continuing calibration percent difference
61875	BT5-923	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61875	BT5-923	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61875	BT5-923	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61875	BT5-923	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61875	BT5-923	CLP-VOC	127184		J	TETRACHLOROETHENE	Continuing calibration percent difference

Enclosure I

EPA Level III ADR Outliers
(including Manual Review Outliers)

Quality Control Outlier Reports

SDG 06-1875

LDC #: 14820A1

SDG #: 06-1875

Laboratory: Applied Physics & Chemistry Laboratory

VALIDATION COMPLETENESS WORKSHEET

Level ~~III/IV~~ ADR

Date: 4/11/06

Page: 1 of 1

Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC/MS Volatiles (EPA CLP SOW OLM04.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 5/21-22/06
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	
IV.	Continuing calibration	SW	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	Not reviewed for Level III validation.
XII.	Compound quantitation/CRQLs	A	Not reviewed for Level III validation.
XIII.	Tentitatively identified compounds (TICs)	A	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

All H_2Os

1 1	02NEW15-123	11 1	02_NEW2-123MS	21 1	06G14T1MB01	31	
2 1	02NEW16-123	12 1	02_NEW2-123MSD	22 2	06G1481MB01	32	
3 2	02_DGMW59-123**	13		23		33	
4 1	02_NEW2-123**	14		24		34	
5 1	02_NEW11-123	15		25		35	
6 1	17_DGMW82-123	16		26		36	
7 1	BT4-923	17		27		37	
8 1	BT5-923	18		28		38	
9	02_DGMW59-123MS	19		29		39	
10	02_DGMW59-123MSD	20		30		40	

TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA SW 846 Method 8260B)

A. Chloromethane*	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC.1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Bromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcohol
C. Vinyl choride**	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform*	RR. Dibromomethane	LLL. Hexachlorobutadiene	FFFF. Acrolein
E. Methylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlorobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene**	BB. 1,1,2,2-Tetrachloroethane*	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane*	CC. Toluene**	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene*	XX. 1,2,3-Trichloropropane	RRR. m,p-Xylenes	LLLL.
K. Chloroform**	EE. Ethylbenzene**	YY. n-Propylbenzene	SSS. o-Xylene	MMMM.
L. 1,2-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNN.
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichlorotetrafluoroethane	OOOO.
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	PPPP.
O. Carbon tetrachloride	II. 2-Chloroethylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	QQQQ.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. 1,2-Dichloropropane**	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY. tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-Isopropyltoluene	AAAA. Ethyl tert-butyl ether	UUUU.
T. Dibromochloromethane	NN. Methyl ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	VVVV.

* = System performance check compounds (SPCC) for RRF ; ** = Calibration check compounds (CCC) for %RSD.

LDC #: 14820A1
SDG #: 06-1875

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?

Y N N/A Were all percent differences (%D) ≤ 25% and relative response factors (RRF) ≥ 0.05?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤25.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
	3/29/06	F14T1Q01	JJ	30.4		1-2, 4-8, 11-12	J/UJ/~~P~~ A
			D	40.3		06F14T1MB01	
			I ~~FF~~	26.3			
			M	81.9			
			Q	40.1			
			AA ~~BB~~	26.0			
			~~S**~~		~~0.266 (≥0.30)~~		~~None/A~~
	3/30/06	F1481Q01	JJ	36.3		3, 9-10	J/UJ/A
			D	29.9		06F1481MB01	
			M	73.5			
			Q	38.1			
			Z	33.9			
			AA	30.1			
			FFF	25.2			

CONCAL.1C4

Method Blank Outlier Report

Lab Reporting Batch : 61875	**Lab ID:** APCL
Analysis Method : CLP-Metal	**Analysis Date :** 03/24/2006
Preparation Type : 7470A	**Preparation Date :** 03/24/2006
Method Blank Lab Sample ID : 06M1182-MB-01	**Preparation Batch :** 06M1182H

MERCURY	**Result**	**Reporting Limit**	**Units**	**Lab Qual**	**Comments**
Method Blank Result:	**0.063**	**0.2**	**ug/L**	**B**	

MERCURY was qualified due to method blank contamination in the following associated samples:

Client Sample ID	Lab Sample ID	Dilution	Result	Lab Qual	Result Units
02_DGMW59-123	06-1875-3	1	0.059	B	ug/L
02_NEW11-123	06-1875-5	1	0.068	B	ug/L
02_NEW2-123	06-1875-4	1	0.088	B	ug/L
02NEW15-123	06-1875-1	1	0.065	B	ug/L
02NEW16-123	06-1875-2	1	0.061	B	ug/L
17_DGMW82-123	06-1875-6	1	0.056	B	ug/L

LDC #: 14820A4

SDG #: 06-1875

Laboratory: Applied Physics & Chemistry Laboratory

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

APR

Date: 4/10/06

Page: 1 of 1

Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: Metals (EPA CLP SOW ILMO4.2)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 03/21, 22/06
II.	Calibration	A	
III.	Blanks	SW	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Matrix Spike Analysis	A	3MS /DUP
VI.	Duplicate Sample Analysis	A	
VII.	Laboratory Control Samples (LCS)	A	LCS
VIII.	Internal Standard (ICP-MS)	N	not utilized
IX.	Furnace Atomic Absorption QC	N	
X.	ICP Serial Dilution	A	
XI.	Sample Result Verification	A	Not reviewed for Level III validation.
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	N	
XIV.	Field Blanks	N	

Note:
A = Acceptable
N = Not provided/applicable
SW = See worksheet
ND = No compounds detected
R = Rinsate
FB = Field blank
D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

1	02NEW15-123	11		21		31	
2	02NEW16-123	12		22		32	
3	02_DGMW59-123**	13		23		33	
4	02_NEW2-123**	14		24		34	
5	02_NEW11-123	15		25		35	
6	17_DGMW82-123	16		26		36	
7	02_DGMW59-123MS	17		27		37	
8	02_DGMW59-123DUP	18		28		38	
9	PB	19		29		39	
10		20		30		40	

Notes:

LDC #: [illegible]30A4
SDG #: 06-1875
METHOD: Trace metals (EPA CLP SOW ILM04.0) Soil preparation factor applied: ____
Sample Concentration units, unless otherwise noted: ug/L Associated Samples: All

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Page: 1 of 1
Reviewer: MB
2nd Reviewer: [illegible]

				Sample Identification											
Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action level	3	4	BDR 1	2	5	6					
Al															
Sb															
As			1.663	8.315	5.6	6.0	6.7	5.1	6.6	3.6					
Ba			2.860	14.3											
Be			0.385	1.925											
Cd			0.745	3.725		0.53									
Ca															
Cr															
Co															
Cu															
Fe			5.387	26.935	24.3										
Pb			1.055	5.275		2.9	1.6								
Mg															
Mn			1.436	7.18		1.4									
Hg		0.063		0.315	0.259	0.088	0.065	0.061	0.068	0.056					
Ni															
K															
Se															
Ag			1.263	6.315											
Na															
Tl			2.002	10.01		3.7	2.3	2.1	3.8	4.1					
V															
Zn															
B															
Mo															
Sr															

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

BLNKSMP.4C4

Reporting Limits Outlier Report (detected results reported below the reporting limit)

Lab Report Batch: 61875 **Lab ID:** APCL

Client Sample ID	Lab Sample ID	Analysis Method	Matrix	Analyte Name	Lab Qualifier	Result	EDD Reporting Limit	Units
02_DGMW59-123	06-1875-3	CLP-Metal	AQ	ARSENIC	B	5.6	10	ug/L
				BARIUM	B	134	200	ug/L
				CHROMIUM	B	3.5	10	ug/L
				COPPER	B	11.8	25	ug/L
				IRON	B	24.3	100	ug/L
				MERCURY	B	0.059	0.2	ug/L
				NICKEL	B	5.4	40	ug/L
	06-1875-3RE			POTASSIUM	B	1670	5000	ug/L
	06-1875-3			VANADIUM	B	9.0	50	ug/L
				ZINC	B	12.1	20	ug/L
02_NEW11-123	06-1875-5			ALUMINUM	B	25.0	200	ug/L
				ARSENIC	B	6.6	10	ug/L
				BARIUM	B	107	200	ug/L
				CHROMIUM	B	1.8	10	ug/L
				COPPER	B	14.9	25	ug/L
				IRON	B	32.2	100	ug/L
				MANGANESE	B	9.2	15	ug/L
				MERCURY	B	0.068	0.2	ug/L
	06-1875-5RE			POTASSIUM	B	3410	5000	ug/L
	06-1875-5			THALLIUM	B	3.8	10	ug/L
				VANADIUM	B	9.2	50	ug/L
				ZINC	B	11.6	20	ug/L
02_NEW2-123	06-1875-4			ALUMINUM	B	26.6	200	ug/L
				ARSENIC	B	6.0	10	ug/L
				BARIUM	B	94.4	200	ug/L
				CADMIUM	B	0.53	5	ug/L
				CHROMIUM	B	4.0	10	ug/L
				COPPER	B	14.7	25	ug/L
				IRON	B	41.9	100	ug/L
				LEAD	B	2.9	3	ug/L
				MANGANESE	B	1.4	15	ug/L
				MERCURY	B	0.088	0.2	ug/L
				NICKEL	B	2.4	40	ug/L
	06-1875-4RE			POTASSIUM	B	1760	5000	ug/L
	06-1875-4			THALLIUM	B	3.7	10	ug/L
				VANADIUM	B	14.4	50	ug/L

Reporting Limits Outlier Report (detected results reported below the reporting limit)

Lab Report Batch: 61875 **Lab ID:** APCL

Client Sample ID	Lab Sample ID	Analysis Method	Matrix	Analyte Name	Lab Qualifier	Result	EDD Reporting Limit	Units
02_NEW2-123	06-1875-4	CLP-Metal	AQ	ZINC	B	11.0	20	ug/L
02NEW15-123	06-1875-1			ALUMINUM	B	28.0	200	ug/L
				ARSENIC	B	6.7	10	ug/L
				BARIUM	B	59.3	200	ug/L
				CHROMIUM	B	2.7	10	ug/L
				COPPER	B	15.1	25	ug/L
				IRON	B	38.7	100	ug/L
				LEAD	B	1.6	3	ug/L
				MERCURY	B	0.065	0.2	ug/L
				NICKEL	B	24.9	40	ug/L
	06-1875-1RE			POTASSIUM	B	2270	5000	ug/L
	06-1875-1			THALLIUM	B	2.3	10	ug/L
				VANADIUM	B	11.4	50	ug/L
				ZINC	B	10.7	20	ug/L
		CLP-VOC		1,2-DICHLOROBENZENE	J	0.7	1	ug/L
				1,4-DICHLOROBENZENE	J	0.7	1	ug/L
				CHLOROBENZENE	J	0.5	1	ug/L
02NEW16-123	06-1875-2	CLP-Metal		ALUMINUM	B	20.6	200	ug/L
				ARSENIC	B	5.1	10	ug/L
				BARIUM	B	142	200	ug/L
				CHROMIUM	B	1.9	10	ug/L
				COPPER	B	12.5	25	ug/L
				IRON	B	27.6	100	ug/L
				MERCURY	B	0.061	0.2	ug/L
	06-1875-2RE			POTASSIUM	B	1070	5000	ug/L
	06-1875-2			THALLIUM	B	2.1	10	ug/L
				VANADIUM	B	16.0	50	ug/L
				ZINC	B	7.1	20	ug/L
17_DGMW82-123	06-1875-6			ALUMINUM	B	20.2	200	ug/L
				ARSENIC	B	3.6	10	ug/L
				BARIUM	B	41.5	200	ug/L
				CHROMIUM	B	2.7	10	ug/L
				COBALT	B	2.5	50	ug/L
				COPPER	B	4.8	25	ug/L
				IRON	B	56.3	100	ug/L
				MERCURY	B	0.056	0.2	ug/L

Reporting Limits Outlier Report (detected results reported below the reporting limit)

Lab Report Batch: 61875 **Lab ID:** APCL

Client Sample ID	Lab Sample ID	Analysis Method	Matrix	Analyte Name	Lab Qualifier	Result	EDD Reporting Limit	Units
17_DGMW82-123	06-1875-6RE	CLP-Metal	AQ	POTASSIUM	B	4340	5000	ug/L
	06-1875-6			THALLIUM	B	4.1	10	ug/L
				VANADIUM	B	6.3	50	ug/L
				ZINC	B	10.3	20	ug/L

Enclosure II

EPA Level IV Validation Reports

LDC Report# 14820A1

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro, CTO 084

Collection Date: March 21 through March 22, 2006

LDC Report Date: April 11, 2006

Matrix: Water

Parameters: Volatiles

Validation Level: NFESC Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 06-1875

Sample Identification

02_DGMW59-123
02_NEW2-123
02_DGMW59-123MS
02_DGMW59-123MSD
02_NEW2-123MS
02_NEW2-123MSD

Introduction

This data review covers 6 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Contract Laboratory Program Statement of Work (SOW) OLM04.1 for Volatiles.

This review follows USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999); the following subsections correlate to the above guidelines.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds.

Average relative response factors (RRF) for all volatile target compounds and system monitoring compounds were within validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
3/29/06	Dichlorodifluoromethane Chloroethane 1,1-Dichloroethane 2-Butanone 1,2-Dichloropropane Tetrachloroethene	30.4 40.3 26.3 81.9 40.1 26.0	02_NEW2-123 02_NEW2-123MS 02_NEW2-123MSD 06G1471MB01	J (all detects) UJ (all non-detects)	A
3/30/06	Dichlorodifluoromethane Chloroethane 2-Butanone 1,2-Dichloropropane 2-Hexanone Tetrachloroethene 1,3-Dichlorobenzene	36.3 29.9 73.5 38.1 33.9 30.1 25.2	02_DGMW59-123 02_DGMW59-123MS 02_DGMW59-123MSD 06G1481MB01	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values were within validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

No field blanks were identified in this SDG.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the SOW. All surrogate recoveries were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Although laboratory control samples were not required by the method, laboratory control samples were reported by the laboratory. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

XIII. Tentatively Identified Compounds (TICs)

All tentatively identified compounds were within validation criteria.

XIV. System Performance

The system performance was within validation criteria.

XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

MCAS El Toro, CTO 084
Volatiles - Data Qualification Summary - SDG 06-1875

SDG	Sample	Compound	Flag	A or P	Reason
06-1875	02_NEW2-123	Dichlorodifluoromethane Chloroethane 1,1-Dichloroethane 2-Butanone 1,2-Dichloropropane Tetrachloroethene	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
06-1875	02_DGMW59-123	Dichlorodifluoromethane Chloroethane 2-Butanone 1,2-Dichloropropane 2-Hexanone Tetrachloroethene 1,3-Dichlorobenzene	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)

MCAS El Toro, CTO 084
Volatiles - Laboratory Blank Data Qualification Summary - SDG 06-1875

No Sample Data Qualified in this SDG

MCAS El Toro, CTO 084
Volatiles - Field Blank Data Qualification Summary - SDG 06-1875

No Sample Data Qualified in this SDG

LDC #: 14820A1 | **VALIDATION COMPLETENESS WORKSHEET** | Date: 4/11/06

SDG #: 06-1875 | Level ~~III/IV~~ IV | Page: 1 of 1

Laboratory: Applied Physics & Chemistry Laboratory | Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC/MS Volatiles (EPA CLP SOW OLM04.1)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 5/21-22/06
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	
IV.	Continuing calibration	SW	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	Not reviewed for Level III validation.
XII.	Compound quantitation/CRQLs	A	Not reviewed for Level III validation.
XIII.	Tentitatively identified compounds (TICs)	A	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

W H2Os

1 /	~~02NEW15-123~~	11 /	02_NEW2-123MS	21 /	06G4TI MB01	31	
2 /	~~02NEW16-123~~	12 /	02_NEW2-123MSD	22 2	06G48I MB01	32	
3 2	02_DGMW59-123**	13		23		33	
4 /	02_NEW2-123**	14		24		34	
5 /	~~02_NEW11-123~~	15		25		35	
6 /	~~17_DGMW82-123~~	16		26		36	
7 /	~~BT4-923~~	17		27		37	
8 /	~~BT5-923~~	18		28		38	
9	02_DGMW59-123MS	19		29		39	
10	02_DGMW59-123MSD	20		30		40	

LDC #: 14820A1
SDG #: 06-1875

VALIDATION FINDINGS CHECKLIST

Reviewer: Q
2nd Reviewer: J

Method: Volatiles (EPA CLP SOW OLM0~~3.1~~ 4.2)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS Instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 30% and relative response factors (RRF) ≥ 0.05?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) ≤ 25% and relative response factors (RRF) ≥ 0.05?		✓		
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within QC limits?	✓			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓			
Was a MS/MSD analyzed every 20 samples of each matrix?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per analytical batch?	✓			

LDC #: 14820A1
SDG #: 06-1875

VALIDATION FINDINGS CHECKLIST

Reviewer: 9
2nd Reviewer: 9

Validation Area	Yes	No	NA	Findings/Comments
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	/			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		/		
Were the performance evaluation (PE) samples within the acceptance limits?			/	
X. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	/			
Were retention times within ± 30 seconds of the associated calibration standard?	/			
XI. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	/			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	/			
Were chromatogram peaks verified and accounted for?	/			
XII. Compound quantitation/CRQLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	/			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			/	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			/	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?	/			
XIV. System performance				
System performance was found to be acceptable.	/			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	/			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.		/		
Target compounds were detected in the field duplicates.			/	

LDC #: 14820A1
SDG #: 06-1875

VALIDATION FINDINGS CHECKLIST

Reviewer:
2nd Reviewer:

Validation Area	Yes	No	NA	Findings/Comments
XVII. Field blanks				
Field blanks were identified in this SDG.		✓		
Target compounds were detected in the field blanks.			✓	

TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA CLP SOW OLM04.2)

A. Chloromethane*	Q. 1,2-Dichloropropane**	GG. Xylenes, total	WW. Bromobenzene	MMM. Naphthalene
B. Bromomethane	R. cis-1,3-Dichloropropene	HH. Vinyl acetate	XX. 1,2,3-Trichloropropane	NNN. 1,2,3-Trichlorobenzene
C. Vinyl chloride**	S. Trichloroethene	II. 2-Chloroethylvinyl ether	YY. n-Propylbenzene	OOO. 1,3,5-Trichlorobenzene
D. Chloroethane	T. Dibromochloromethane	JJ. Dichlorodifluoromethane	ZZ. 2-Chlorotoluene	PPP. trans-1,2-Dichloroethene
E. Methylene chloride	U. 1,1,2-Trichloroethane	KK. Trichlorofluoromethane	AAA. 1,3,5-Trimethylbenzene	QQQ. cis-1,2-Dichloroethene
F. Acetone	V. Benzene	LL. Methyl-tert-butyl ether	BBB. 4-Chlorotoluene	RRR. m,p-Xylenes
G. Carbon disulfide	W. trans-1,3-Dichloropropene	MM. 1,2-Dibromo-3-chloropropane	CCC. tert-Butylbenzene	SSS. o-Xylene
H. 1,1-Dichloroethene**	X. Bromoform*	NN. Diethyl ether	DDD. 1,2,4-Trimethylbenzene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane
I. 1,1-Dichloroethane*	Y. 4-Methyl-2-pentanone	OO. 2,2-Dichloropropane	EEE. sec-Butylbenzene	UUU. Benzyl chloride
J. 1,2-Dichloroethene, total	Z. 2-Hexanone	PP. Bromochloromethane	FFF. 1,3-Dichlorobenzene	VVV. 4-Ethyltoluene
K. Chloroform**	AA. Tetrachloroethene	QQ. 1,1-Dichloropropene	GGG. p-Isopropyltoluene	WWW. Ethanol
L. 1,2-Dichloroethane	BB. 1,1,2,2-Tetrachloroethane*	RR. Dibromomethane	HHH. 1,4-Dichlorobenzene	XXX. Ethyl ether
M. 2-Butanone	CC. Toluene**	SS. 1,3-Dichloropropane	III. n-Butylbenzene	
N. 1,1,1-Trichloroethane	DD. Chlorobenzene*	TT. 1,2-Dibromoethane	JJJ. 1,2-Dichlorobenzene	
O. Carbon tetrachloride	EE. Ethylbenzene**	UU. 1,1,1,2-Tetrachloroethane	KKK. 1,2,4-Trichlorobenzene	
P. Bromodichloromethane	FF. Styrene	VV. Isopropylbenzene	LLL. Hexachlorobutadiene	

* = System performance check compounds (SPCC) for RRF ; ** = Calibration check compounds (CCC) for %RSD.

Notes:____

LDC #: [illegible] 20A1
SDG #: 06-1875

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?

Y N N/A Were all percent differences (%D) ≤ 25% and relative response factors (RRF) ≥ 0.05?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤25.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
	3/29/06	F14T1Q01	J	30.4		4. 11-12	J/UJ/A
			D	40.3		06F14T1HB01	
			I	26.3			
			M	81.9			
			Q	40.1			
			AA	26.0			
			~~S~~		~~0.266 (≥0.30)~~		~~None/A~~
	3/30/06	F1481Q01	J	36.3		3. 9-10	J/UJ/A
			D	29.9		06F1481HB0	
			M	73.5			
			Q	38.1			
			Z	33.9			
			AA	30.1			
			FFF	25.2			

LDC #: 14820B1
SDG #: 06-1875

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: a
2nd Reviewer: e

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

RRF = $(A_x)(C_{is})/(A_{is})(C_x)$
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

A_x = Area of compound,
C_x = Concentration of compound,
S = Standard deviation of the RRFs
X = Mean of the RRFs

A_{is} = Area of associated internal standard
C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported RRF (10 std)	Recalculated RRF (10 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL	12/9/04	Methylene chloride (1st internal standard)	1.996	1.996	2.087	2.087	4.90	4.89
			Trichlorethene (2nd internal standard)	0.294	0.294	0.303	0.303	6.72	6.70
			Toluene (3rd internal standard)	1.507	1.507	1.518	1.518	4.46	4.46
2			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						
3			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						
4			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14820A1
SDG #: 06-1875

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: e

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = $(A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (Initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	E147IR01	3/29/06	Methylene chloride (1st internal standard)	2.087	2.160	2.160	3.5	3.5
			Trichlorethene (2nd internal standard)	0.303	0.266	0.266	12.0	12.1
			Toluene (3rd internal standard)	1.578	1.545	1.545	1.8	1.8
2	E148IR01	3/30/06	Methylene chloride (1st internal standard)	2.087	2.035	2.035	2.5	2.5
			Trichlorethene (2nd internal standard)	0.303	0.254	0.254	16.1	16.2
			Toluene (3rd internal standard)	1.578	1.448	1.448	4.6	4.6
3			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					
4			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: K820A1
SDG #: 06-18TS

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
Reviewer: 9
2nd reviewer: f

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 3

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8	10	10.04	101	100	1
Bromofluorobenzene		10.19	102	102	0
1,2-Dichloroethane-d4		10.29	103	103	0

Sample ID: ____________

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					

Sample ID: ____________

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					

Sample ID: ____________

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					

Sample ID: ____________

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					

LDC #: 14820A1
SDG #: 06-1875

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: l

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SSC - SC)/SA   Where: SSC = Spiked sample concentration   SC = Sample concentration
SA = Spike added

RPD = I MSC - MSDC I * 2/(MSC + MSDC)   MSC = Matrix spike percent recovery   MSDC = Matrix spike duplicate percent recovery

MS/MSD sample: 9/10

Compound	Spike Added (ug/L)		Sample Concentration (ug/L)	Spiked Sample Concentration (ug/L)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	—	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	10	10	ND	12.0	10.7	120	120	107	107	11	11
Trichloroethene				11.3	10.3	113	113	103	103	9	9
Benzene				11.5	10.5	115	115	105	105	9	9
Toluene				12.0	11.0	120	120	110	110	9	9
Chlorobenzene				11.8	11.0	118	118	110	110	7	7

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14820A1
SDG #: 06-1875

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: [illegible]
2nd reviewer: [illegible]

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(DF)}{(A_{is})(RRF)(V_o)(\%S)}$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

RRF = Relative response factor of the calibration standard.

V_o = Volume or weight of sample pruged in milliliters (ml) or grams (g).

Df = Dilution factor.

%S = Percent solids, applicable to soils and solid matrices only.

Example:

Sample I.D. ND , ______:

Conc. = ( ) ( ) ( )
( ) ( ) ( ) ( )

=

#	Sample ID	Compound	Reported Concentration ( )	Calculated Concentration ( )	Qualification

RECALC.1S

LDC Report# 14820A4

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro, CTO 084

Collection Date: March 21 through March 22, 2006

LDC Report Date: April 11, 2006

Matrix: Water

Parameters: Metals

Validation Level: NFESC Level III & IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 06-1875

Sample Identification

02_DGMW59-123**
02_NEW2-123**
02_DGMW59-123MS
02_DGMW59-123DUP

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 4 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Contract Laboratory Program Statement of Work (SOW) for Inorganic Analysis, Multi-media, Multi-concentration, D.N. ILM04.2 for TAL Metals including Molybdenum.

This review follows USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) and incorporates updates per EPA SOW (D.N. ILM04.2); the following subsections correlate to the guidelines.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a NFESC Level IV review. A NFESC Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

All criteria for the initial calibration were met.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

CRDL standards for ICP and AA were analyzed and reported as required.

Instrument detection limits, interelement corrections and linear range analysis were performed at the required frequency.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Mercury	0.063 ug/L	All samples in SDG 05-4158
ICB/CCB	Arsenic Barium Beryllium Cadmium Iron Lead Manganese Silver Thallium	1.663 ug/L 2.860 ug/L 0.385 ug/L 0.745 ug/L 5.387 ug/L 1.055 ug/L 1.436 ug/L 1.263 ug/L 2.002 ug/L	All samples in SDG 05-4158

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample ID	Analyte	Reported Concentration	Modified Final Concentration
02_DGMW59-123**	Arsenic Iron Mercury	5.6 ug/L 24.3 ug/L 0.059 ug/L	5.6U ug/L 24.3U ug/L 0.059U ug/L
02_NEW2-123**	Arsenic Cadmium Lead Manganese Mercury Thallium	6.0 ug/L 0.53 ug/L 2.9 ug/L 1.4 ug/L 0.088 ug/L 3.7 ug/L	6.0U ug/L 0.53U ug/L 2.9U ug/L 1.4U ug/L 0.088U ug/L 3.7U ug/L

No field blanks were identified in this SDG.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

Matrix spike (MS) samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VIII. Internal Standards (ICP-MS)

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

All sample result verifications were acceptable for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Overall Assessment of Data

Data flags have been summarized at the end of this report if data has been qualified.

XIII. Field Duplicates

No field duplicates were identified in this SDG.

MCAS El Toro, CTO 084
Metals - Data Qualification Summary - SDG 06-1875

No Sample Data Qualified in this SDG

MCAS El Toro, CTO 084
Metals - Laboratory Blank Data Qualification Summary - SDG 06-1875

SDG	Sample ID	Analyte	Modified Final Concentration	A or P
06-1875	02_DGMW59-123**	Arsenic Iron Mercury	5.6U ug/L 24.3U ug/L 0.059U ug/L	A
06-1875	02_NEW2-123**	Arsenic Cadmium Lead Manganese Mercury Thallium	6.0U ug/L 0.53U ug/L 2.9U ug/L 1.4U ug/L 0.088U ug/L 3.7U ug/L	A

MCAS El Toro, CTO 084
Metals - Field Blank Data Qualification Summary - SDG 06-1875

No Sample Data Qualified in this SDG

LDC #: 14820A4 **VALIDATION COMPLETENESS WORKSHEET** Date: 4/10/06
SDG #: 06-1875 Level III/IV Page: 1 of 1
Laboratory: Applied Physics & Chemistry Laboratory Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: Metals (EPA CLP SOW ILMO4.2)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 03/21, 22/06
II.	Calibration	A	
III.	Blanks	SW	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Matrix Spike Analysis	A	3MS/Dup
VI.	Duplicate Sample Analysis	A	
VII.	Laboratory Control Samples (LCS)	A	LCS
VIII.	Internal Standard (ICP-MS)	N	3 Not utilized
IX.	Furnace Atomic Absorption QC	N	
X.	ICP Serial Dilution	A	
XI.	Sample Result Verification	A	Not reviewed for Level III validation.
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	N	
XIV.	Field Blanks	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet
ND = No compounds detected
R = Rinsate
FB = Field blank
D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

1	~~02NEW15-123~~	11		21		31	
2	~~02NEW16-123~~	12		22		32	
3	02_DGMW59-123**	13		23		33	
4	02_NEW2-123**	14		24		34	
5	~~02_NEW11-123~~	15		25		35	
6	~~17_DGMW82-123~~	16		26		36	
7	02_DGMW59-123MS	17		27		37	
8	02_DGMW59-123DUP	18		28		38	
9	PB	19		29		39	
10		20		30		40	

Notes:

14820A4W.wpd

LDC #: 14820A4
SDG #: 66-1875

VALIDATION FINDINGS CHECKLIST

Reviewer: MH
2nd Reviewer: 𝒻

Method: Metals (EPA SOW ILM04.0)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury and 85-115% for cyanide) QC limits?	✓			
Were all initial calibration correlation coefficients $\geq$ 0.995?	✓			
Was a midrange cyanide standard distilled?			✓	
III. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
IV. ICP Interference Check Sample				
Were ICP interference check samples performed as required?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
V. Matrix spikes				
Was a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS. Soil / Water.	✓			
Were the MS percent recoveries (%R) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
VI. Duplicate Analyses				
Was a duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated DUP. Soil / Water.	✓			
Were the duplicate relative percent differences (RPD) $\leq$ 20% for waters and $\leq$ 35% for soil samples? A control limit of $\leq$ CRDL($\leq$ 2X CRDL for soil) was used for samples that were $\leq$ 5X the CRDL, including when only one of the duplicate sample values were $\leq$ 5X the CRDL.	✓			
VII. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?	✓			

LDC #: 14820A4
SDG #: 06-1875

Reviewer: MH
2nd Reviewer: [illegible]

VALIDATION FINDINGS CHECKLIST

Validation Area	Yes	No	NA	Findings/Comments
VIII. Internal Standards (Method 200.8)				
Were all the percent recoveries (%R) within the 60-125% of the intensity of the internal standard in the associated initial calibration?			✓	
If the %Rs were outside the criteria, was a reanalysis performed?			✓	
IX. Furnace Atomic Absorption QC				
If MSA was performed, was the correlation coefficients ≥ 0.995?			✓	
Do all applicable analysies have duplicate injections?			✓	
For sample concentrations > CRDL, are applicable duplicate injection RSD values < 20%?			✓	
Were analytical spike recoveries within the 85-115% QC limits?			✓	
X. ICP Serial Dilution				
Was an ICP serial dilution analyzed if analyte concentrations were > 50X the IDL?	✓			
Were all percent differences (%Ds) ≤ 10%?	✓			
Was there evidence of negative interference? If yes, professional judgement will be used to qualify the data.		✓		
XI. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
XII. Sample Result Verification				
Were CRDLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were results within the linear range of the ICP?	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
XV. Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: 14820A4
SDG #: 06-1875

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Page: 1 of 1
Reviewer: MG
2nd reviewer: [signature]

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1-6	Aq	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
ac7,8	↓	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
Analysis Method		
ICP		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
ICP Trace		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
ICP-MS		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN, ___ ___
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Si, CN,

Comments: Mercury by CVAA if performed

ELEMENTS.4

LDC #: 14830A4
SDG #: 06-1875
METHOD: Trace metals (EPA CLP SOW ILM04.0) Soil preparation factor applied: ______

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: All

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Page: 1 of 1
Reviewer: MG
2nd Reviewer: Q

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action level	3	4	1	2	5	6				
							DDR			D				
Al														
Sb														
As			1.663	8.315	5.6	6.0	6.7	5.1	6.6	3.6				
Ba			2.860	14.3										
Be			0.385	1.925										
Cd			0.745	3.725		0.53								
Ca														
Cr														
Co														
Cu														
Fe			5.387	26.935	24.3									
Pb			1.055	5.275		2.9	1.6							
Mg														
Mn			1.436	7.18		1.4								
Hg		0.063		0.315	0.059	0.088	0.065	0.061	0.068	0.056				
Ni														
K														
Se														
Ag			1.263	6.315										
Na														
Tl			2.002	10.01		3.7	2.3	2.1	3.8	4.1				
V														
Zn														
B														
Mo														
Sr														

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

BLNKSMP.4C4

LDC #: 14820A4
SDG #: 06-1845

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Page: 1 of 1
Reviewer: MH
2nd Reviewer: [illegible]

METHOD: Trace metals (EPA CLP SOW ILM04.0)

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = concentration (in ug/L) of each analyte measured in the analysis of the ICV or CCV solution
True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated %R	Reported %R	Acceptable (Y/N)
ICV	ICP (Initial calibration)	K	14920	15000	99.5	99.5 #	Y
	GFAA (Initial calibration)						
ICV	CVAA (Initial calibration)	Hg	7.45	7.5	99.3	99.3	Y
CCV	ICP (Continuing calibration)	Ni	2056 ~~2036~~	2000	102.8	102.8	Y
	GFAA (Continuing calibration)						
CCV	CVAA (Continuing calibration)	Hg	4.93	5.0	98.6	98.6	Y
	Cyanide (Initial calibration)						
	Cyanide (Continuing calibration)						

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

from I/n for SDG 06-1845

CALCLC.4C4

LDC #: 14820A4
SDG #: 06-1875

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Reviewer: MH
2nd Reviewer: [illegible]

METHOD: Trace metals (EPA CLP SOW ILM04.0)

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$ Where, S = Original sample concentration
D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

$\%D = \frac{|I-SDR|}{I} \times 100$ Where, I = Initial Sample Result (ug/L)
SDR = Serial Dilution Result (ug/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated %R / RPD / %D	Reported %R / RPD / %D	Acceptable (Y/N)
ICSAB	ICP interference check	Be	490.0	500	98.0	98.0	Y
LCS	Laboratory control sample	Sb	505.3	500	101	101	
7	Matrix spike	Cu	(SSR-SR) 255	250	102	102	
8	Duplicate	Ba	133.8	134.4	0.4	0.4	
3	ICP serial dilution	Na	81.5	82.39	1.1	1.1	

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14820A4
SDG #: 06-1875

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: MH
2nd reviewer:

METHOD: Trace metals (EPA CLP SOW ILM04.0)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments and within the linear range of the ICP?
Y N N/A Are all detection limits below the CRDL?

Detected analyte results for 3 were recalculated and verified using the following equation:

Concentration = $\frac{(RD)(FV)(Dil)}{(In. Vol.)(\%S)}$

Recalculation:

From the raw data

Mg = 44.93 mg/L = 44930 ug/L

RD = Raw data concentration
FV = Final volume (ml)
In. Vol. = Initial volume (ml) or weight (G)
Dil = Dilution factor
%S = Decimal percent solids

#	Sample ID	Analyte	Reported Concentration (ug/L)	Calculated Concentration (ug/L)	Acceptable (Y/N)
1	3	As	5.6	5.6	Y
		Ba	134	134	
		Ca	172000	172000	
		Cr	3.5	3.4	
		Cu	11.8	11.8	
		Fe	24.3	24.3	
		Mg	44900	44900	
		Hg	0.059	0.058	
		Mo	8.1	8.1	
		Ni	5.4	5.4	
		K	1670	~~8~~ 1670	
		Se	5.9	5.9	
		Na	82400	82400	
		V	9.0	9.0	
		Zn	12.1	12.1	

LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

CDM Federal
9444 Farnham Street, Suite 210
San Diego, CA 92123
ATTN: Mr. Michael Higman

May 1, 2006

SUBJECT: MCAS El Toro CTO 084, Data Validation

Dear Mr. Higman,

Enclosed is the final validation report and Excel qualification sheet for the fractions listed below. This SDG were received on April 17th, 2006.

LDC project# 14858:

SDG #	**Fraction**
06-1934	Volatiles (Method CLP SOW OLM04.1) TPH-Gas (SW 846 Method 8015B) TPH-Diesel (SW 848 Method 8015B)

The following deliverables are submitted under this report:

- Attachment I — Sample ID Cross Reference and Data Review Level
- Attachment II — Overall Data Qualification Summary
- Attachment III — CDM Database Qualification Summary
- Enclosure I — EPA Level III ADR Outliers (including manual review outliers)
- Enclosure II — EPA Level IV DVR (manual review)

The data validation was performed in accordance to the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999. Where specific guidance is not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience. The following items were evaluated during the review:

- Holding Times
- Sample Preservation
- Cooler Temperatures
- Initial Calibration (Manual Review)
- Continuing Calibration (Manual Review)
- Blanks
- Surrogates
- Internal Standards (Manual Review)
- Matrix Spike/Matrix Spike Duplicates
- Laboratory Control Samples

- Detection and Quantitation Limits
- Field QC Samples

Please feel free to contact us if you have any questions.

Sincerely,

ERauto

Erlinda T. Rauto
Operations Manager/Senior Chemist

Attachment I

Sample ID Cross Reference and Data Review Level

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
28-Mar-2006	16_MPE1-123	06-1934-1	N	3510C	8015B DRO	III
28-Mar-2006	16_MPE1-123	06-1934-1	N	5030B	8015B GRO	III
28-Mar-2006	16_MPE1-123	06-1934-1	N	5030B	CLP-VOC	III
28-Mar-2006	BT8-923	06-1934-10	TB	5030B	CLP-VOC	III
28-Mar-2006	16_MPE1-123	06-1934-1DL	N	5030B	CLP-VOC	III
28-Mar-2006	16_MPE1-123MS	06-1934-1MS	MS	5030B	8015B GRO	III
28-Mar-2006	16_MPE1-123MSD	06-1934-1MSD	MSD	5030B	8015B GRO	III
28-Mar-2006	16_MPE1-323	06-1934-2	FD	3510C	8015B DRO	III
28-Mar-2006	16_MPE1-323	06-1934-2	FD	5030B	8015B GRO	III
28-Mar-2006	16_MPE1-323	06-1934-2	FD	5030B	CLP-VOC	III
28-Mar-2006	16_MPE1-323	06-1934-2DL	FD	5030B	CLP-VOC	III
28-Mar-2006	16_MW01-123	06-1934-3	N	3510C	8015B DRO	III
28-Mar-2006	16_MW01-123	06-1934-3	N	5030B	8015B GRO	III
28-Mar-2006	16_MW01-123	06-1934-3	N	5030B	CLP-VOC	III
28-Mar-2006	16_MW01-123	06-1934-3DL	N	5030B	CLP-VOC	III
28-Mar-2006	16_MW01-323	06-1934-4	FD	3510C	8015B DRO	III
28-Mar-2006	16_MW01-323	06-1934-4	FD	5030B	8015B GRO	III
28-Mar-2006	16_MW01-323	06-1934-4	FD	5030B	CLP-VOC	III
28-Mar-2006	16_MW01-323	06-1934-4DL	FD	5030B	CLP-VOC	III
28-Mar-2006	16_MW04-123	06-1934-5	N	3510C	8015B DRO	IV
28-Mar-2006	16_MW04-123	06-1934-5	N	5030B	8015B GRO	IV
28-Mar-2006	16_MW04-123	06-1934-5	N	5030B	CLP-VOC	IV
28-Mar-2006	16_MW04-123	06-1934-5DL	N	5030B	CLP-VOC	IV
28-Mar-2006	16_MW05-123	06-1934-6	N	3510C	8015B DRO	IV
28-Mar-2006	16_MW05-123	06-1934-6	N	5030B	8015B GRO	IV
28-Mar-2006	16_MW05-123	06-1934-6	N	5030B	CLP-VOC	IV

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
28-Mar-2006	16_MW09-123	06-1934-7	N	3510C	8015B DRO	III
28-Mar-2006	16_MW09-123	06-1934-7	N	5030B	8015B GRO	III
28-Mar-2006	16_MW09-123	06-1934-7	N	5030B	CLP-VOC	III
28-Mar-2006	16_MW11-123	06-1934-8	N	3510C	8015B DRO	III
28-Mar-2006	16_MW11-123	06-1934-8	N	5030B	8015B GRO	III
28-Mar-2006	16_MW11-123	06-1934-8	N	5030B	CLP-VOC	III
28-Mar-2006	16_MW11-123	06-1934-8DL	N	5030B	CLP-VOC	III
28-Mar-2006	BT7-923	06-1934-9	TB	5030B	CLP-VOC	III

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Attachment II

Overall Data Qualification Summary

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 61934										
8015B DRO	16_MPE1-123	AQ	N							
				PHC AS DIESEL FUEL	0.5	0.02J		J	mg/L	
8015B DRO	16_MPE1-323	AQ	FD							
				PHC AS DIESEL FUEL	0.5	0.5U		UJ	mg/L	
8015B GRO	16_MPE1-123	AQ	N							
				PHC AS GASOLINE	0.05	0.01J		UJ	mg/L	
8015B GRO	16_MPE1-323	AQ	FD							
				PHC AS GASOLINE	0.05	0.02J		UJ	mg/L	
8015B GRO	16_MW01-123	AQ	N							
				PHC AS GASOLINE	0.05	0.02J		UJ	mg/L	
8015B GRO	16_MW01-323	AQ	FD							
				PHC AS GASOLINE	0.05	0.04J		UJ	mg/L	
8015B GRO	16_MW04-123	AQ	N							
				PHC AS GASOLINE	0.05	0.03J		U	mg/L	
8015B GRO	16_MW05-123	AQ	N							
				PHC AS GASOLINE	0.05	0.03J		U	mg/L	
8015B GRO	16_MW09-123	AQ	N							
				PHC AS GASOLINE	0.05	0.05J		U	mg/L	
8015B GRO	16_MW11-123	AQ	N							
				PHC AS GASOLINE	0.05	0.01J		U	mg/L	
CLP-VOC	16_MPE1-123	AQ	N							
				1,1-DICHLOROETHANE	1	1U		UJ	ug/L	
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				CIS-1,2-DICHLOROETHENE	1	0.4J		J	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
				TETRACHLOROETHENE	1	1U		UJ	ug/L	

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 61934										
CLP-VOC	16_MPE1-323	AQ	FD							
				1,1-DICHLOROETHANE	1	1U		UJ	ug/L	
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				CIS-1,2-DICHLOROETHENE	1	0.5J		J	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
				TETRACHLOROETHENE	1	1U		UJ	ug/L	
CLP-VOC	16_MW01-123	AQ	N							
				1,1-DICHLOROETHANE	1	1U		UJ	ug/L	
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				CHLOROFORM	1	0.8J		J	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
				TETRACHLOROETHENE	1	1U		UJ	ug/L	
CLP-VOC	16_MW01-323	AQ	FD							
				1,1-DICHLOROETHANE	1	1U		UJ	ug/L	
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				CHLOROFORM	1	0.8J		J	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
				TETRACHLOROETHENE	1	1U		UJ	ug/L	
CLP-VOC	16_MW04-123	AQ	N							
				1,1-DICHLOROETHANE	1	1U		UJ	ug/L	
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				CHLOROFORM	1	0.5J		J	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
				TETRACHLOROETHENE	1	1U		UJ	ug/L	

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 61934										
CLP-VOC	16_MW05-123	AQ	N							
				1,1-DICHLOROETHANE	1	1U		UJ	ug/L	
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				CHLOROFORM	1	0.6J		J	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
				TETRACHLOROETHENE	1	1U		UJ	ug/L	
CLP-VOC	16_MW09-123	AQ	N							
				1,1-DICHLOROETHANE	1	1U		UJ	ug/L	
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				DICHLORODIFLUOROMETHANE	1	11		J	ug/L	
				TETRACHLOROETHENE	1	1U		UJ	ug/L	
CLP-VOC	16_MW11-123	AQ	N							
				1,1-DICHLOROETHANE	1	0.4J		J	ug/L	
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				1,3-DICHLOROBENZENE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				2-HEXANONE	10	10U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
				TETRACHLOROETHENE	1	1U		UJ	ug/L	
CLP-VOC	BT7-923	AQ	TB							
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				1,3-DICHLOROBENZENE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				2-HEXANONE	10	10U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
				TETRACHLOROETHENE	1	1U		UJ	ug/L	

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 61934										
CLP-VOC	BT8-923	AQ	TB							
				1,2-DICHLOROPROPANE	1	1U		UJ	ug/L	
				1,3-DICHLOROBENZENE	1	1U		UJ	ug/L	
				2-BUTANONE (MEK)	10	10U		UJ	ug/L	
				2-HEXANONE	10	10U		UJ	ug/L	
				CHLOROETHANE	1	1U		UJ	ug/L	
				DICHLORODIFLUOROMETHANE	1	1U		UJ	ug/L	
				TETRACHLOROETHENE	1	1U		UJ	ug/L	

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Attachment III

CDM Database Qualification Summary

CDM Federal Programs Corporation
Reason for Qualified Results
SDG Nos. : 61934

Sample Del Group (SDG)	Sample ID	Test Method	CAS No.	Detected Qualifier	Non Detected Qualifier	Analyte Name	Reason
61934	16_MPE1-123	8015B GRO	8006619	U		PHC AS GASOLINE	Present in method blank
61934	16_MPE1-123	CLP-VOC	75343		J	1,1-DICHLOROETHANE	Continuing calibration percent difference
61934	16_MPE1-123	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61934	16_MPE1-123	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61934	16_MPE1-123	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61934	16_MPE1-123	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61934	16_MPE1-123	CLP-VOC	127184		J	TETRACHLOROETHENE	Continuing calibration percent difference
61934	16_MPE1-323	8015B GRO	8006619	U		PHC AS GASOLINE	Present in method blank
61934	16_MPE1-323	CLP-VOC	75343		J	1,1-DICHLOROETHANE	Continuing calibration percent difference
61934	16_MPE1-323	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61934	16_MPE1-323	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61934	16_MPE1-323	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61934	16_MPE1-323	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61934	16_MPE1-323	CLP-VOC	127184		J	TETRACHLOROETHENE	Continuing calibration percent difference
61934	16_MW01-123	8015B GRO	8006619	U		PHC AS GASOLINE	Present in method blank
61934	16_MW01-123	CLP-VOC	75343		J	1,1-DICHLOROETHANE	Continuing calibration percent difference
61934	16_MW01-123	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61934	16_MW01-123	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61934	16_MW01-123	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61934	16_MW01-123	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61934	16_MW01-123	CLP-VOC	127184		J	TETRACHLOROETHENE	Continuing calibration percent difference
61934	16_MW01-323	8015B GRO	8006619	U		PHC AS GASOLINE	Present in method blank
61934	16_MW01-323	CLP-VOC	75343		J	1,1-DICHLOROETHANE	Continuing calibration percent difference
61934	16_MW01-323	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61934	16_MW01-323	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61934	16_MW01-323	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61934	16_MW01-323	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61934	16_MW01-323	CLP-VOC	127184		J	TETRACHLOROETHENE	Continuing calibration percent difference
61934	16_MW04-123	8015B GRO	8006619	U		PHC AS GASOLINE	Present in method blank
61934	16_MW04-123	CLP-VOC	75343		J	1,1-DICHLOROETHANE	Continuing calibration percent difference
61934	16_MW04-123	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61934	16_MW04-123	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference

CDM Federal Programs Corporation

Project No # : 14858

Reason for Qualified Results

SDG Nos. : 61934

Sample Del Group (SDG)	Sample ID	Test Method	CAS No.	Detected Qualifier	Non Detected Qualifier	Analyte Name	Reason
61934	16_MW04-123	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61934	16_MW04-123	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61934	16_MW04-123	CLP-VOC	127184		J	TETRACHLOROETHENE	Continuing calibration percent difference
61934	16_MW05-123	8015B GRO	8006619	U		PHC AS GASOLINE	Present in method blank
61934	16_MW05-123	CLP-VOC	75343		J	1,1-DICHLOROETHANE	Continuing calibration percent difference
61934	16_MW05-123	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61934	16_MW05-123	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61934	16_MW05-123	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61934	16_MW05-123	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61934	16_MW05-123	CLP-VOC	127184		J	TETRACHLOROETHENE	Continuing calibration percent difference
61934	16_MW09-123	8015B GRO	8006619	U		PHC AS GASOLINE	Present in method blank
61934	16_MW09-123	CLP-VOC	75343		J	1,1-DICHLOROETHANE	Continuing calibration percent difference
61934	16_MW09-123	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61934	16_MW09-123	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61934	16_MW09-123	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61934	16_MW09-123	CLP-VOC	75718	J		DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61934	16_MW09-123	CLP-VOC	127184		J	TETRACHLOROETHENE	Continuing calibration percent difference
61934	16_MW11-123	8015B GRO	8006619	U		PHC AS GASOLINE	Present in method blank
61934	16_MW11-123	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61934	16_MW11-123	CLP-VOC	541731		J	1,3-DICHLOROBENZENE	Continuing calibration percent difference
61934	16_MW11-123	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61934	16_MW11-123	CLP-VOC	591786		J	2-HEXANONE	Continuing calibration percent difference
61934	16_MW11-123	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61934	16_MW11-123	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61934	16_MW11-123	CLP-VOC	127184		J	TETRACHLOROETHENE	Continuing calibration percent difference
61934	BT7-923	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61934	BT7-923	CLP-VOC	541731		J	1,3-DICHLOROBENZENE	Continuing calibration percent difference
61934	BT7-923	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61934	BT7-923	CLP-VOC	591786		J	2-HEXANONE	Continuing calibration percent difference
61934	BT7-923	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61934	BT7-923	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61934	BT7-923	CLP-VOC	127184		J	TETRACHLOROETHENE	Continuing calibration percent difference

Project No # : 14858

CDM Federal Programs Corporation
Reason for Qualified Results
SDG Nos. : 61934

Sample Del Group (SDG)	Sample ID	Test Method	CAS No.	Detected Qualifier	Non Detected Qualifier	Analyte Name	Reason
61934	BT8-923	CLP-VOC	78875		J	1,2-DICHLOROPROPANE	Continuing calibration percent difference
61934	BT8-923	CLP-VOC	541731		J	1,3-DICHLOROBENZENE	Continuing calibration percent difference
61934	BT8-923	CLP-VOC	78933		J	2-BUTANONE (MEK)	Continuing calibration percent difference
61934	BT8-923	CLP-VOC	591786		J	2-HEXANONE	Continuing calibration percent difference
61934	BT8-923	CLP-VOC	75003		J	CHLOROETHANE	Continuing calibration percent difference
61934	BT8-923	CLP-VOC	75718		J	DICHLORODIFLUOROMETHANE	Continuing calibration percent difference
61934	BT8-923	CLP-VOC	127184		J	TETRACHLOROETHENE	Continuing calibration percent difference

Enclosure I

EPA Level III ADR Outliers (including Manual Review Outliers)

Quality Control Outlier Reports

SDG 06-1934

LDC #: 14858A1 **VALIDATION COMPLETENESS WORKSHEET** Date: 4/25/06
SDG #: 06-1934 Level III/IV Page: 1 of 1
Laboratory: Applied Physics & Chemistry Laboratory Reviewer: [illegible]
2nd Reviewer: [illegible]

ADR

METHOD: GC/MS Volatiles (EPA CLP SOW OLM04.2)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3/28/06
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	
IV.	Continuing calibration	SW	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	Not reviewed for Level III validation.
XII.	Compound quantitation/CRQLs	SW	Not reviewed for Level III validation.
XIII.	Tentitatively identified compounds (TICs)	N	Not reviewed for Level III validation. not reported
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	SW	
XVI.	Field duplicates	SW	D = 1 + 3 2, 4 5, 7 6, 8
XVII.	Field blanks	ND	TB = 15, 16

Note: A = Acceptable ND = No compounds detected D = Duplicate
N = Not provided/applicable R = Rinsate TB = Trip blank
SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

water

1	1 16_MPE1-123	11	1 16_MW05-123**	21	1 06G1471-MB-01	31	
2	2 16_MPE1-123DL	12	1 16_MW09-123	22	2 06G1481-MB-01	32	
3	1 16_MPE1-323	13	2 16_MW11-123	23		33	
4	2 16_MPE1-323DL	14	2 16_MW11-123DL	24		34	
5	1 16_MW01-123	15	2 BT7-923 TB	25		35	
6	2 16_MW01-123DL	16	2 BT8-923 TB	26		36	
7	1 16_MW01-323	17		27		37	
8	2 16_MW01-323DL	18		28		38	
9	1 16_MW04-123**	19		29		39	
10	2 16_MW04-123DL**	20		30		40	

TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA CLP SOW OLM04.2)

A. Chloromethane*	Q. 1,2-Dichloropropane**	GG. Xylenes, total	WW. Bromobenzene	MMM. Naphthalene
B. Bromomethane	R. cis-1,3-Dichloropropene	HH. Vinyl acetate	XX. 1,2,3-Trichloropropane	NNN. 1,2,3-Trichlorobenzene
C. Vinyl choride**	S. Trichloroethene	II. 2-Chloroethylvinyl ether	YY. n-Propylbenzene	OOO. 1,3,5-Trichlorobenzene
D. Chloroethane	T. Dibromochloromethane	JJ. Dichlorodifluoromethane	ZZ. 2-Chlorotoluene	PPP. trans-1,2-Dichloroethene
E. Methylene chloride	U. 1,1,2-Trichloroethane	KK. Trichlorofluoromethane	AAA. 1,3,5-Trimethylbenzene	QQQ. cis-1,2-Dichloroethene
F. Acetone	V. Benzene	LL. Methyl-tert-butyl ether	BBB. 4-Chlorotoluene	RRR. m,p-Xylenes
G. Carbon disulfide	W. trans-1,3-Dichloropropene	MM. 1,2-Dibromo-3-chloropropane	CCC. tert-Butylbenzene	SSS. o-Xylene
H. 1,1-Dichloroethene**	X. Bromoform*	NN. Diethyl ether	DDD. 1,2,4-Trimethylbenzene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane
I. 1,1-Dichloroethane*	Y. 4-Methyl-2-pentanone	OO. 2,2-Dichloropropane	EEE. sec-Butylbenzene	UUU. Benzyl chloride
J. 1,2-Dichloroethene, total	Z. 2-Hexanone	PP. Bromochloromethane	FFF. 1,3-Dichlorobenzene	VVV. 4-Ethyltoluene
K. Chloroform**	AA. Tetrachloroethene	QQ. 1,1-Dichloropropene	GGG. p-Isopropyltoluene	WWW. Ethanol
L. 1,2-Dichloroethane	BB. 1,1,2,2-Tetrachloroethane*	RR. Dibromomethane	HHH. 1,4-Dichlorobenzene	XXX. Ethyl ether
M. 2-Butanone	CC. Toluene**	SS. 1,3-Dichloropropane	III. n-Butylbenzene	
N. 1,1,1-Trichloroethane	DD. Chlorobenzene*	TT. 1,2-Dibromoethane	JJJ. 1,2-Dichlorobenzene	
O. Carbon tetrachloride	EE. Ethylbenzene**	UU. 1,1,1,2-Tetrachloroethane	KKK. 1,2,4-Trichlorobenzene	
P. Bromodichloromethane	FF. Styrene	VV. Isopropylbenzene	LLL. Hexachlorobutadiene	

* = System performance check compounds (SPCC) for RRF ; ** = Calibration check compounds (CCC) for %RSD.

Notes:____

COMPNDL.1C4

LDC #: 1 BA1
SDG #: -1934

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Reviewer:
2nd Reviewer:

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?

Y N N/A Were all percent differences (%D) ≤ 25% and relative response factors (RRF) ≥ 0.05?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤25.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
	3/29/06	G1471Q01	JJ	30.4		06G1471-MB-01	J/UJ/A
			D	40.3		1, 3, 5, 7, 9, 11, 12	
			I	26.3			
			M	81.9			
			Q	40.1			
			AA	26.0			
	3/30/06	G1481Q01	JJ	36.3		06G1481-MB-01	J/UJ/A
			D	29.9		2, 4, 6, 8, 10,	
			Q	38.1		13→16	
			Z	33.9			
			AA	30.1			
			FFF	25.2			
			M	73.5			

CONCAL1C4

Method Blank Outlier Report

Lab Reporting Batch : 61934	**Lab ID:** APCL
Analysis Method : 8015B GRO	**Analysis Date :** 03/31/2006
Preparation Type : 5030B	**Preparation Date :** 03/31/2006
Method Blank Lab Sample ID : 06G1483-MB-01	**Preparation Batch :** 06G1483

PHC AS GASOLINE	Result	Reporting Limit	Units	Lab Qual	Comments
Method Blank Result:	**0.01**	**0.05**	**mg/L**	**J**	

PHC AS GASOLINE was qualified due to method blank contamination in the following associated samples:

Client Sample ID	Lab Sample ID	Dilution	Result	Lab Qual	Result Units
16_MPE1-123	06-1934-1	1	0.01	J	mg/L
16_MPE1-323	06-1934-2	1	0.02	J	mg/L
16_MW01-123	06-1934-3	1	0.02	J	mg/L
16_MW01-323	06-1934-4	1	0.04	J	mg/L
16_MW04-123	06-1934-5	1	0.03	J	mg/L
16_MW05-123	06-1934-6	1	0.03	J	mg/L
16_MW09-123	06-1934-7	1	0.05	J	mg/L

Method Blank Outlier Report

Lab Reporting Batch : 61934	**Lab ID:** APCL
Analysis Method : 8015B GRO	**Analysis Date :** 04/04/2006
Preparation Type : 5030B	**Preparation Date :** 04/04/2006
Method Blank Lab Sample ID : 06G1499-MB-01	**Preparation Batch :** 06G1499

PHC AS GASOLINE	**Result**	**Reporting Limit**	**Units**	**Lab Qual**	**Comments**
Method Blank Result:	**0.02**	**0.05**	**mg/L**	**J**	

PHC AS GASOLINE was qualified due to method blank contamination in the following associated samples:

Client Sample ID	Lab Sample ID	Dilution	Result	Lab Qual	Result Units
16_MW11-123	06-1934-8	1	0.01	J	mg/L

Reporting Limits Outlier Report (detected results reported below the reporting limit)

Lab Report Batch: 61934 **Lab ID:** APCL

Client Sample ID	Lab Sample ID	Analysis Method	Matrix	Analyte Name	Lab Qualifier	Result	EDD Reporting Limit	Units
16_MPE1-123	06-1934-1	8015B DRO	AQ	PHC AS DIESEL FUEL	J	0.02	0.5	mg/L
		8015B GRO		PHC AS GASOLINE	J	0.01	0.05	mg/L
		CLP-VOC		CIS-1,2-DICHLOROETHENE	J	0.4	1	ug/L
16_MPE1-323	06-1934-2	8015B GRO		PHC AS GASOLINE	J	0.02	0.05	mg/L
		CLP-VOC		CIS-1,2-DICHLOROETHENE	J	0.5	1	ug/L
16_MW01-123	06-1934-3	8015B GRO		PHC AS GASOLINE	J	0.02	0.05	mg/L
	06-1934-3DL	CLP-VOC		CHLOROFORM	J	0.9	2	ug/L
	06-1934-3			CHLOROFORM	J	0.8	1	ug/L
16_MW01-323	06-1934-4	8015B GRO		PHC AS GASOLINE	J	0.04	0.05	mg/L
	06-1934-4DL	CLP-VOC		CHLOROFORM	J	0.9	2	ug/L
	06-1934-4			CHLOROFORM	J	0.8	1	ug/L
16_MW04-123	06-1934-5	8015B GRO		PHC AS GASOLINE	J	0.03	0.05	mg/L
	06-1934-5DL	CLP-VOC		CHLOROFORM	J	0.7	2	ug/L
	06-1934-5			CHLOROFORM	J	0.5	1	ug/L
16_MW05-123	06-1934-6	8015B GRO		PHC AS GASOLINE	J	0.03	0.05	mg/L
		CLP-VOC		CHLOROFORM	J	0.6	1	ug/L
16_MW11-123	06-1934-8	8015B GRO		PHC AS GASOLINE	J	0.01	0.05	mg/L
	06-1934-8DL	CLP-VOC		1,1,2-TRICHLOROTRIFLUOROETHAN	J	3	5	ug/L
	06-1934-8			1,1-DICHLOROETHANE	J	0.4	1	ug/L
	06-1934-8DL			CHLOROFORM	J	3	5	ug/L

QC Outlier Report: Field Duplicates (Non-qualified Outliers)

Lab Report Batch: 61934 **Lab ID:** APCL

			Field Sample				Field Sample Duplicate						
Analysis Method	Matrix	Analyte Name	Client Sample ID	Ana Type	Result	Lab Qualifier	Client Sample Duplicate ID	Ana Type	Result	Lab Qualifier	RPD Dup* (%)	RPD Criteria (%)	Result Units
8015B DR	AQ	PHC AS DIESEL FUEL	16_MPE1-123	RES	0.02	J	16_MPE1-323	RES	0.5	U	200.0	20	mg/L
8015B GR	AQ	PHC AS GASOLINE		RES	0.01	J		RES	0.02	J	66.7	20	mg/L
CLP-VOC	AQ	CIS-1,2-DICHLOROETHENE		RES	0.4	J		RES	0.5	J	22.2	20	ug/L
8015B GR	AQ	PHC AS GASOLINE	16_MW01-123	RES	0.02	J	16_MW01-323	RES	0.04	J	66.7	20	mg/L

**Note: Outlier report also includes analytes detected in one sample but not in the related sample, i.e., analyte was detected in the field sample but not in the field duplicate sample, or vice versa. In this case, RPD value assigned to the field duplicate sample is 200.*

Project Number and Name: ***6218.084 - EL TORO***

Enclosure II

EPA Level IV Validation Reports

LDC Report# 14858A1

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro, CTO 084

Collection Date: March 28, 2006

LDC Report Date: April 26, 2006

Matrix: Water

Parameters: Volatiles

Validation Level: NFESC Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 06-1934

Sample Identification

16_MW04-123
16_MW04-123DL
16_MW05-123

Introduction

This data review covers 3 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Contract Laboratory Program Statement of Work (SOW) OLM04.2 for Volatiles.

This review follows USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999); the following subsections correlate to the above guidelines.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds.

Average relative response factors (RRF) for all volatile target compounds and system monitoring compounds were within validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
3/29/06	Dichlorodifluoromethane Chloroethane 1,1-Dichloroethane 2-Butanone 1,2-Dichloropropane Tetrachloroethene	30.4 40.3 26.3 81.9 40.1 26.0	16_MW04-123 16_MW05-123 06G1471MB01	J (all detects) UJ (all non-detects)	A
3/30/06	Dichlorodifluoromethane Chloroethane 1,2-Dichloropropane 2-Hexanone Tetrachloroethene 1,3-Dichlorobenzene 2-Butanone	36.3 29.9 38.1 33.9 30.1 25.2 73.5	16_MW04-123DL 06G1481MB01	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values were within validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

Samples BT7-923 and BT8-923 were identified as trip blanks. No volatile contaminants were found in these blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the SOW. All surrogate recoveries were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were not required by the method.

VIII. Laboratory Control Samples (LCS)

Although laboratory control samples were not required by the method, laboratory control samples were reported by the laboratory. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
16_MW04-123	Trichloroethene	Sample result exceeded calibration range.	Reported result should be within calibration range.	J (all detects)	A

XIII. Tentatively Identified Compounds (TICs)

All tentatively identified compounds were within validation criteria.

XIV. System Performance

The system performance was within validation criteria.

XV. Overall Assessment of Data

The overall assessment of data was acceptable. In the case where more than one result was reported for an individual sample, the least technically acceptable results were rejected as follows:

Sample	Compound	Flag	A or P
16_MW04-123	Trichloroethene	R	A
16_MW04-123DL	All TCL compounds except Trichloroethene	R	A

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

MCAS El Toro, CTO 084
Volatiles - Data Qualification Summary - SDG 06-1934

SDG	Sample	Compound	Flag	A or P	Reason
06-1934	16_MW04-123 16_MW05-123	Dichlorodifluoromethane Chloroethane 1,1-Dichloroethane 2-Butanone 1,2-Dichloropropane Tetrachloroethene	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
06-1934	16_MW04-123DL	Dichlorodifluoromethane Chloroethane 2-Butanone 1,2-Dichloropropane 2-Hexanone Tetrachloroethene 1,3-Dichlorobenzene	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)
06-1934	16_MW04-123	Trichloroethene	J (all detects)	A	Compound quantitation and CRQLs
06-1934	16_MW04-123	Trichloroethene	R	A	Overall assessment of data
06-1934	16_MW04-123DL	All TCL compounds except Trichloroethene	R	A	Overall assessment of data

MCAS El Toro, CTO 084
Volatiles - Laboratory Blank Data Qualification Summary - SDG 06-1934

No Sample Data Qualified in this SDG

MCAS El Toro, CTO 084
Volatiles - Field Blank Data Qualification Summary - SDG 06-1934

No Sample Data Qualified in this SDG

LDC #: 14858A1

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 4/25/06
Page: 1 of 1
Reviewer: M
2nd Reviewer: ______

SDG #: 06-1934
Laboratory: Applied Physics & Chemistry Laboratory

METHOD: GC/MS Volatiles (EPA CLP SOW OLM04.2)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3/28/06
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	
IV.	Continuing calibration	SW	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	Not reviewed for Level III validation.
XII.	Compound quantitation/CRQLs	SW	Not reviewed for Level III validation.
XIII.	Tentitatively identified compounds (TICs)	N	Not reviewed for Level III validation. not reported
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	SW	
XVI.	Field duplicates N	~~SW~~	~~D = 1 & 3 2, 4 5, 7 6, 8~~
XVII.	Field blanks	ND	TB = ~~[illegible]~~ BT7-923 & BT8-923

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

water

1	1 ~~16_MPE1-123~~	11	1 16_MW05-123**	21	1 066141-MB-01	31	
2	2 ~~16_MPE1-123DL~~	12	1 ~~16_MW09-123~~	22	2 066148-MB-01	32	
3	1 ~~16_MPE1-323~~	13	2 ~~16_MW11-123~~	23		33	
4	2 ~~16_MPE1-323DL~~	14	2 ~~16_MW11-123DL~~	24		34	
5	1 ~~16_MW01-123~~	15	1 2 ~~BT7-923~~ TB	25		35	
6	2 ~~16_MW01-123DL~~	16	1 2 ~~BT8-923~~ TB	26		36	
7	1 ~~16_MW01-323~~	17		27		37	
8	2 ~~16_MW01-323DL~~	18		28		38	
9	1 16_MW04-123**	19		29		39	
10	2 16_MW04-123DL**	20		30		40	

LDC #: 14858A1
SDG #: 06-1934

VALIDATION FINDINGS CHECKLIST

Reviewer: [signature]
2nd Reviewer: ____

Method: Volatiles (EPA CLP SOW OLM0~~3.1~~ 4.2)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS Instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) $\leq$ 30% and relative response factors (RRF) $\geq$ 0.05?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) $\leq$ 25% and relative response factors (RRF) $\geq$ 0.05?		✓		
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within QC limits?	✓			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?	✓			
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.			✓	
Was a MS/MSD analyzed every 20 samples of each matrix?			✓	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per analytical batch?	✓			

LDC #: 14858A1
SDG #: 06-1934

VALIDATION FINDINGS CHECKLIST

Reviewer: [illegible]
2nd Reviewer:

Validation Area	Yes	No	NA	Findings/Comments
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds of the associated calibration standard?	✓			
XI. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XII. Compound quantitation/CRQLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			✓	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			✓	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?			✓	
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target compounds were detected in the field duplicates.	✓			

LDC #: 1485BA1
SDG #: 06-1734

VALIDATION FINDINGS CHECKLIST

Reviewer: ____
2nd Reviewer: ____

Validation Area	Yes	No	NA	Findings/Comments
XVII. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.		✓		

TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA CLP SOW OLM04.2)

A. Chloromethane*	Q. 1,2-Dichloropropane**	GG. Xylenes, total	WW. Bromobenzene	MMM. Naphthalene
B. Bromomethane	R. cis-1,3-Dichloropropene	HH. Vinyl acetate	XX. 1,2,3-Trichloropropane	NNN. 1,2,3-Trichlorobenzene
C. Vinyl choride**	S. Trichloroethene	II. 2-Chloroethylvinyl ether	YY. n-Propylbenzene	OOO. 1,3,5-Trichlorobenzene
D. Chloroethane	T. Dibromochloromethane	JJ. Dichlorodifluoromethane	ZZ. 2-Chlorotoluene	PPP. trans-1,2-Dichloroethene
E. Methylene chloride	U. 1,1,2-Trichloroethane	KK. Trichlorofluoromethane	AAA. 1,3,5-Trimethylbenzene	QQQ. cis-1,2-Dichloroethene
F. Acetone	V. Benzene	LL. Methyl-tert-butyl ether	BBB. 4-Chlorotoluene	RRR. m,p-Xylenes
G. Carbon disulfide	W. trans-1,3-Dichloropropene	MM. 1,2-Dibromo-3-chloropropane	CCC. tert-Butylbenzene	SSS. o-Xylene
H. 1,1-Dichloroethene**	X. Bromoform*	NN. Diethyl ether	DDD. 1,2,4-Trimethylbenzene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane
I. 1,1-Dichloroethane*	Y. 4-Methyl-2-pentanone	OO. 2,2-Dichloropropane	EEE. sec-Butylbenzene	UUU. Benzyl chloride
J. 1,2-Dichloroethene, total	Z. 2-Hexanone	PP. Bromochloromethane	FFF. 1,3-Dichlorobenzene	VVV. 4-Ethyltoluene
K. Chloroform**	AA. Tetrachloroethene	QQ. 1,1-Dichloropropene	GGG. p-Isopropyltoluene	WWW. Ethanol
L. 1,2-Dichloroethane	BB. 1,1,2,2-Tetrachloroethane*	RR. Dibromomethane	HHH. 1,4-Dichlorobenzene	XXX. Ethyl ether
M. 2-Butanone	CC. Toluene**	SS. 1,3-Dichloropropane	III. n-Butylbenzene	
N. 1,1,1-Trichloroethane	DD. Chlorobenzene*	TT. 1,2-Dibromoethane	JJJ. 1,2-Dichlorobenzene	
O. Carbon tetrachloride	EE. Ethylbenzene**	UU. 1,1,1,2-Tetrachloroethane	KKK. 1,2,4-Trichlorobenzene	
P. Bromodichloromethane	FF. Styrene	VV. Isopropylbenzene	LLL. Hexachlorobutadiene	

* = System performance check compounds (SPCC) for RRF ; ** = Calibration check compounds (CCC) for %RSD.

Notes:____

LDC #: 14858A1
SDG #: 06-1934

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: ______

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A — Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?

Y N N/A — Were all percent differences (%D) ≤ 25% and relative response factors (RRF) ≥ 0.05?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤25.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
	3/29/06	G1471Q01	JJ	30.4		06G1471-MB-01	J/UJ/A
			D	40.3		~~1, 3, 5, 7~~, 9, 11, ~~12~~	
			I	26.3			
			M	81.9			
			Q	40.1			
			AA	26.0			
	3/30/06	G1481Q01	JJ	36.3		06G1481-MB-01	J/UJ/A
			D	29.9		~~2, 4, 6, 8~~, 10,	
			Q	38.1		~~13, 14, 16~~	
			Z	33.9			
			AA	30.1			
			FFF	25.2			
			M	73.5			

CONCAL.1C4

LDC #: 14858A1
SDG #: 06-1934

VALIDATION FINDINGS WORKSHEET
Compound Quantitation and Reported CRQLs

Reviewer: [illegible]
2nd Reviewer:

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?
Y N N/A Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?

#	Date	compound ~~Sample ID~~	Finding	Associated Samples	Qualifications
		S	exceeded cal range	~~1, 3, 5, 7~~ 9, ~~13~~	J/A dil

Comments: See sample calculation verification worksheet for recalculations

CRQL.1C4

LDC #: 14858A1
SDG #: 06-1934

VALIDATION FINDINGS WORKSHEET
Overall Assessment of Data

Reviewer:
2nd Reviewer:

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

All available information pertaining to the data were reviewed using professional judgement to compliment the determination of the overall quality of the data.

Y N N/A Was the overall quality and usability of the data acceptable?

#	Date	compound ~~Sample ID~~	Finding	Associated Samples	Qualifications
		S	exceeded cal range	~~1, 3, 5, 7~~, 9, ~~13~~	R/A
		all except S	diluted	~~2, 4, 6, 8~~, 10, ~~14~~	✓

Comments:

OVR.1C4

LDC #: 14858A1
SDG #: 06-1934

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: P
2nd Reviewer: ______

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

RRF = $(A_x)(C_{is})/(A_{is})(C_x)$
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

A_x = Area of compound,
C_x = Concentration of compound,
S = Standard deviation of the RRFs
X = Mean of the RRFs

A_{is} = Area of associated internal standard
C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported RRF (20 std)	Recalculated RRF (20 std)	Reported Average RRF (initial)	Recalculated Average RRF (initial)	Reported %RSD	Recalculated %RSD
1	ICAL	12/9/05	Methylene chloride (1st internal standard)	2.115	2.115	2.087	2.087	4.90	4.90
			Trichlorethene (2nd internal standard)	0.322	0.322	0.303	0.303	6.72	6.72
			Toluene (3rd internal standard)	1.612	1.612	1.518	1.518	4.46	4.46
2			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						
3			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						
4			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14858A1
SDG #: 06-1934

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: ________

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = $(A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (Initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	G1471Q01	3/29/06	Methylene chloride (1st internal standard)	2.087	2.160	2.160	3.5	3.5
			Trichlorethene (2nd internal standard)	0.303	0.266	0.266	12.0	12.0
			Toluene (3rd internal standard)	1.518	1.545	1.545	1.8	1.8
2			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					
3	G147Q01	3/30/06	Methylene chloride (1st internal standard)		2.035	2.035	2.5	2.5
			Trichlorethene (2nd internal standard)		0.254	0.254	16.1	16.1
			Toluene (3rd internal standard)		1.448	1.448	4.6	4.6
4			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14833A1
SDG #: 06-1934

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
Reviewer: B
2nd reviewer:

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: #9

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8	10	9.9	99	99	0
Bromofluorobenzene		9.2	92	92	
1,2-Dichloroethane-d4		10.6	106	106	

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					

LDC #: 14558A1
SDG #: 06-1934

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

Reviewer: JS
2nd Reviewer: ____

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratoy control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * SSC/SA   Where: SSC = Spiked sample concentration
SA = Spike added

RPD = I LCS - LCSD I * 2/(LCS + LCSD)   LCS = Laboraotry control sample percent recovery   LCSD = Laboratory control sample duplicate percent recovery

LCS ID: G147IL01-LCS

Compound	Spike Added ( )		Spiked Sample Concentration ( )		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
Vinyl chloride										
1,2-Dichloroethane										
Carbon tetrachloride										
1,2-Dichloropropane										
Trichloroethene	10	NA	10.5	NA	105	105				
1,1,2-Trichloroethane										
Benzene	10	NA	10.6	NA	106	106	NA			
cis-1,3-Dichloropropene										
Bromoform										
Tetrachloroethene										
1,2-Dibromoethane										
1,4-Dichlorobenzene										

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14858A1
SDG #: 06-1934

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: B
2nd reviewer:

METHOD: GC/MS VOA (EPA CLP SOW OLM04.2)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(DF)}{(A_{is})(RRF)(V_o)(\%S)}$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

RRF = Relative response factor of the calibration standard.

V_o = Volume or weight of sample pruged in milliliters (ml) or grams (g).

Df = Dilution factor.

%S = Percent solids, applicable to soils and solid matrices only.

Example:

Sample I.D. #9 , 1,1,2-Trichlorotrifluoroethane

Conc. = $\frac{(75163)(10)(\quad)}{(37656)(1.910)(\quad)(\quad)}$

=

#	Sample ID	Compound	Reported Concentration ( )	Calculated Concentration ( )	Qualification

RECALC.1S

LDC Report# 14858A7

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro, CTO 084

Collection Date: March 28, 2006

LDC Report Date: April 26, 2006

Matrix: Water

Parameters: Total Petroleum Hydrocarbons as Gasoline

Validation Level: NFESC Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 06-1934

Sample Identification

16_MW04-123
16_MW05-123

Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Gasoline.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent difference (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as gasoline contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound	Concentration	Associated Samples
06G1483MB01	3/31/06	TPH as gasoline	0.01 mg/L	All samples in SDG 06-1934

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
16_MW04-123	TPH as gasoline	0.03 ug/L	0.05U ug/L
16_MW05-123	TPH as gasoline	0.03 ug/L	0.05U ug/L

No field blanks were identified in this SDG.

IV. Accuracy and Precision Data

a. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

b. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

c. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

V. Target Compound Identification

All target compound identifications were within validation criteria.

VI. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

VII. System Performance

The system performance was acceptable.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

IX. Field Duplicates

No field duplicates were identified in this SDG.

MCAS El Toro, CTO 084
Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG 06-1934

No Sample Data Qualified in this SDG

MCAS El Toro, CTO 084
Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification Summary - SDG 06-1934

SDG	Sample	Compound	Modified Final Concentration	A or P
06-1934	16_MW04-123	TPH as gasoline	0.05U ug/L	A
06-1934	16_MW05-123	TPH as gasoline	0.05U ug/L	A

MCAS El Toro, CTO 084
Total Petroleum Hydrocarbons as Gasoline - Field Blank Data Qualification Summary - SDG 06-1934

No Sample Data Qualified in this SDG

LDC #: 14858A7

VALIDATION COMPLETENESS WORKSHEET

Level ~~III/IV~~ IV

Date: 4/25/06
Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: ______

SDG #: 06-1934
Laboratory: Applied Physics & Chemistry Laboratory

METHOD: GC TPH as Gasoline (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	3/28/06
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	ICV ≤ 15
III.	Blanks	SW	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	
V.	Target compound identification	A	Not reviewed for Level III validation.
VI.	Compound Quantitation and CRQLs	A	Not reviewed for Level III validation.
VII.	System Performance	A	Not reviewed for Level III validation.
VIII.	Overall assessment of data	A	
IX.	Field duplicates N	~~SW~~	~~D = 1+2 3+4~~
X.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation   Water

~~1~~	1 ~~16_MPE1-123~~	11	1 06G1483-MB-01	21		31	
~~2~~	1 ~~16_MPE1-323~~	~~12~~	~~06G1499-MB-01~~	22		32	
~~3~~	1 ~~16_MW01-123~~	13		23		33	
~~4~~	1 ~~16_MW01-323~~	14		24		34	
5	1 16_MW04-123**	15		25		35	
6	1 16_MW05-123**	16		26		36	
~~7~~	1 ~~16_MW09-123~~	17		27		37	
~~8~~	2 ~~16_MW11-123~~	18		28		38	
~~9~~	1 16_MPE1-123MS	19		29		39	
~~10~~	1 ~~16_MPE1-123MSD~~	20		30		40	

Notes: ____

LDC #: 14858A7
SDG #: 06-1934

VALIDATION FINDINGS CHECKLIST

Reviewer: [illegible]
2nd Reviewer:

Method: ✓ GC ______ HPLC

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Was a linear fit used for evaluation? If yes, were all percent relative standard deviations (%RSD) < 20%?	✓			
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?		✓		
Did the initial calibration meet the curve fit acceptance criteria?			✓	
Were the RT windows properly established?	✓			
IV. Continuing calibration				
What type of continuing calibration calculation was performed? ____%D or ____%R	✓			
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) < 15%.0 or percent recoveries 85-115%?	✓			
Were all the retention times within the acceptance windows?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
VI. Surrogate spikes				
Were all surrogate %R within the QC limits?	✓			
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓			
Was a MS/MSD analyzed every 20 samples of each matrix?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			

LDC #: 14858A7
SDG #: 06-1934

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: /

METHOD: GC / HPLC

The calibration Factor (CF), average CF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

CF = A/C
average CF = sum of the CF/number of standards
%RSD = 100 * (S/X)

A = Area of compound,
C = Concentration of compound,
S = Standard deviation of the CF
X = Mean of the CFs

#	Standard ID	Calibration Date	Compound	Reported CF (1000 std)	Recalculated CF (1000 std)	Reported Average CF (initial)	Recalculated Average CF (initial)	Reported %RSD	Recalculated %RSD
1	Lugt-083	12/19/05	gasoline	25816.75	25816.75	25919.3	25919.3	7.892	7.892
2									
3									
4									

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14558A7
SDG #: 06-1934

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: ß
2nd Reviewer: /

METHOD: GC ✓ HPLC ____

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration CF were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. CF - CF)/ave. CF
CF = A/C

Where: ave. CF = initial calibration average CF
CF = continuing calibration CF
A = Area of compound
C = Concentration of compound

#	Standard ID	Calibration Date	Compound	Average CF(Ical)/ CCV Conc.	Reported CF/Conc. CCV	Recalculated CF/Conc. CCV	Reported %D	Recalculated %D
1	~~06~~ 14839	3/31/06	gasoline	1	1	1	0	0
2								
3								
4								

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 1[illegible]8A1
SDG #: 0[illegible]1934

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
Reviewer: [illegible]
2nd reviewer: ______

METHOD: ✓ GC __ HPLC

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: #5

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
4BFB	not specified	100	108	108	108	0

Sample ID: ______

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference

Sample ID: ______

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference

LDC #: 14850A7
SDG #: 06-1934

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: [illegible]
2nd Reviewer:

METHOD: ___ GC ___HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC - SC)/SA Where SSC = Spiked concentration SC = Sample concentration
SA = Spike added

RPD =(((SSCMS - SSCMSD) * 2) / (SSCMS + SSCMSD))*100 MS = Matrix spike percent recovery MSD = Matrix spike duplicate percent recovery

MS/MSD samples: 9 + 10

Compound	Spike Added (mg/L)		Sample Conc. (mg/L)	Spike Sample Concentration (mg/L)		Matrix spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	---	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)	1	1	0.01	1.11	1.02	110	110	101	101	9	9
Diesel (8015)											
Benzene (8021B)											
Methane (RSK-175)											
2,4-D (8151)											
Dinoseb (8151)											
Naphthalene (8310)											
Anthracene (8310)											
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 1[illegible]8A7
SDG #: 06-1934

VALIDATION FIND[illegible]S WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: [illegible]
2nd Reviewer:

____METHOD: ✓ GC __HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC - SC)/SA Where SSC = Spiked concentration SC = Sample concentration
SA = Spike added

RPD =(((SSCLCS - SSCLCSD) * 2) / (SSCLCS + SSCLCSD))*100 LCS = Laboratory Control Sample percent recovery LCSD = Laboratory Control Sample duplicate percent recovery

LCS/LCSD samples: LCS ID

Compound	Spike Added (mg/L)		Sample Conc. (mg/L)	Spike Sample Concentration (mg/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	---	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)	1	1	0	1.01	1.02	101	101	102	102	1	1
Diesel (8015)											
Benzene (8021B)											
Methane (RSK-175)											
2,4-D (8151)											
Dinoseb (8151)											
Naphthalene (8310)											
Anthracene (8310)											
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14858A7
SDG #: 06-1934

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: [illegible]
2nd Reviewer: ____

METHOD: __ GC __ HPLC

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds within 10% of the reported results?

Concentration= $\frac{(A)(Fv)(Df)}{(RF)(Vs \text{ or } Ws)(\%S/100)}$

A= Area or height of the compound to be measured
Fv= Final Volume of extract
Df= Dilution Factor
RF= Average response factor of the compound in the initial calibration
Vs= Initial volume of the sample
Ws= Initial weight of the sample
%S= Percent Solid

Example:

Sample ID. #5 Compound Name gasoline

Concentration = $\frac{736151 \times 1}{25919.267 \quad 1000}$

= 0.0284 mg/L

#	Sample ID	Compound	Reported Concentrations ( )	Recalculated Results Concentrations ( )	Qualifications

Comments: ____

SAMPCALew.wpd

LDC Report# 14858A8

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro, CTO 084

Collection Date: March 28, 2006

LDC Report Date: April 26, 2006

Matrix: Water

Parameters: Total Petroleum Hydrocarbons as Diesel

Validation Level: NFESC Level IV

Laboratory: Applied P & Ch Laboratory

Sample Delivery Group (SDG): 06-1934

Sample Identification

16_MW04-123
16_MW05-123

Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Diesel.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical or advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section IX.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent difference (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as diesel contaminants were found in the method blanks.

No field blanks were identified in this SDG.

IV. Accuracy and Precision Data

a. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

b. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG 06-1934	TPH as diesel	No MS/MSD associated with these samples.	MS/MSD required.	None	P

c. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

V. Target Compound Identification

All target compound identifications were within validation criteria.

VI. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria.

VII. System Performance

The system performance was acceptable.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

IX. Field Duplicates

No field duplicates were identified in this SDG.

MCAS El Toro, CTO 084
Total Petroleum Hydrocarbons as Diesel - Data Qualification Summary - SDG 06-1934

SDG	Sample	Compound	Flag	A or P	Reason
06-1934	16_MW04-123 16_MW05-123	TPH as diesel	None	P	Matrix spike/Matrix spike duplicates

MCAS El Toro, CTO 084
Total Petroleum Hydrocarbons as Diesel - Laboratory Blank Data Qualification Summary - SDG 06-1934

No Sample Data Qualified in this SDG

MCAS El Toro, CTO 084
Total Petroleum Hydrocarbons as Diesel - Field Blank Data Qualification Summary - SDG 06-1934

No Sample Data Qualified in this SDG

LDC #: 14858A8 **VALIDATION COMPLETENESS WORKSHEET** Date: 4/25/06

SDG #: 06-1934 Level ~~III~~ IV Page: 1 of 1

Laboratory: Applied Physics & Chemistry Laboratory Reviewer: FJ

2nd Reviewer: ______

METHOD: GC TPH as Diesel (EPA SW846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	3/28/06
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	ICV ≤ 15
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	N	None / P
IVc.	Laboratory control samples	A	LCS / D
V.	Target compound identification	A	Not reviewed for Level III validation.
VI.	Compound Quantitation and CRQLs	A	Not reviewed for Level III validation.
VII.	System Performance	A	Not reviewed for Level III validation.
VIII.	Overall assessment of data	A	
IX.	Field duplicates N	~~SW~~	~~D = 1 + 2~~ ~~3 + 4~~
X.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ~~*~~ ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation Water

1	~~16_MPE1-123~~	11	06G1489-MB-01	21		31	
2	~~16_MPE1-323~~	12		22		32	
3	~~16_MW01-123~~	13		23		33	
4	~~16_MW01-323~~	14		24		34	
5	16_MW04-123**	15		25		35	
6	16_MW05-123**	16		26		36	
7	~~16_MW09-123~~	17		27		37	
8	~~16_MW11-123~~	18		28		38	
9	~~16_MPE1-123MS~~	19		29		39	
10	~~16_MPE1-123MSD~~	20		30		40	

Notes: ______

LDC #: 14858A8
#: 06-1934

VALIDATION FINDINGS CHECKLIST

Reviewer: [illegible]
2nd Reviewer: ______

Method: ✓ GC ______ HPLC

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Was a linear fit used for evaluation? If yes, were all percent relative standard deviations (%RSD) < 20%?	✓			
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?		✓		
Did the initial calibration meet the curve fit acceptance criteria?			✓	
Were the RT windows properly established?	✓			
IV. Continuing calibration				
What type of continuing calibration calculation was performed? ____%D or ____%R	✓			
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) < 15%.0 or percent recoveries 85-115%?	✓			
Were all the retention times within the acceptance windows?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within the QC limits?	✓			
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each *matrix* in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.			✓	
Was a MS/MSD analyzed every 20 samples of each matrix?			✓	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			

LDC #: 14858A8
SDG #: 06-1934

VALIDATION FINDINGS CHECKLIST

Reviewer: [illegible]
2nd Reviewer: ______

Validation Area	Yes	No	NA	Findings/Comments
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Target compound identification				
Were the retention times of reported detects within the RT windows?			✓	
XI. Compound quantitation/CRQLs				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XII. System performance				
System performance was found to be acceptable.	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Were field duplicate pairs identified in this SDG?	✓			
Were target compounds idetected in the field duplicates?	✓			
XV. Field blanks				
Were field blanks identified in this SDG?		✓		
Were target compounds detected in the field blanks?			✓	

LDC #: 14558A8
SDG #: 06-1934

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: ______

METHOD: GC ✓ HPLC ______

The calibration Factor (CF), average CF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

CF = A/C
average CF = sum of the CF/number of standards
%RSD = 100 * (S/X)

A = Area of compound,
C = Concentration of compound,
S = Standard deviation of the CF
X = Mean of the CFs

#	Standard ID	Calibration Date	Compound	Reported CF (100 std)	Recalculated CF (100 std)	Reported Average CF (initial)	Recalculated Average CF (initial)	Reported %RSD	Recalculated %RSD
1	ds62-057	12/19/05	diesel	9058.79	9058.79	10060.9	10060.9	11.851	11.851
2									
3									
4									

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14558A8
SDG #: 06-1934

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: ________

METHOD: GC ✓ HPLC ________

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration CF were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. CF - CF)/ave. CF
CF = A/C

Where: ave. CF = initial calibration average CF
CF = continuing calibration CF
A = Area of compound
C = Concentration of compound

#	Standard ID	Calibration Date	Compound	Average CF(Ical)/ CCV Conc.	Reported CF/Conc. CCV	Recalculated CF/Conc. CCV	Reported %D	Recalculated %D
1	14896.402	4/3/06	Diesel	1000	993	993	1	1
2								
3								
4								

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 1[illegible]3A8
SDG #: 0[illegible]934

VALIDATION FIND[illegible]S WORKSHEET
Surrogate Res[illegible] Verification

Page: [illegible] of 1
Reviewer: [illegible]
2nd reviewer: ______

METHOD: ~~GC~~ __ HPLC

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 5

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
n-octacosane	not specified	50	44.991	90	89.98	0

Sample ID:

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

Sample ID:

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

SURRCALCNew.wpd

LDC #: 14858A8
SDG #: 06-1934

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Page: 1 of 1
Reviewer: B
2nd Reviewer:

METHOD: ✓ GC __HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC - SC)/SA Where SSC = Spiked concentration SC = Sample concentration
SA = Spike added

RPD =(((SSCLCS - SSCLCSD) * 2) / (SSCLCS + SSCLCSD))*100 LCS = Laboratory Control Sample percent recovery LCSD = Laboratory Control Sample duplicate percent recovery

LCS/LCSD samples: LC/D

Compound	Spike Added (mg/L)		Sample Conc. (mg/L)	Spike Sample Concentration (mg/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	---	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)											
Diesel (8015)	1	1	0	108	103	108	108	103	103	0	0
Benzene (8021B)											
Methane (RSK-175)											
2,4-D (8151)											
Dinoseb (8151)											
Naphthalene (8310)											
Anthracene (8310)											
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14858A7
SDG #: 06-1934

VALIDATION FINDINGS CHECKLIST

Reviewer: JB
2nd Reviewer: ______

Validation Area	Yes	No	NA	Findings/Comments
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XI. Compound quantitation/CRQLs				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XII. System performance				
System performance was found to be acceptable.	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Were field duplicate pairs identified in this SDG?				
Were target compounds idetected in the field duplicates?				
XV. Field blanks				
Were field blanks identified in this SDG?				
Were target compounds detected in the field blanks?				

LDC #: 14858A7
SDG #: 06-1934

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer:
2nd Reviewer:

METHOD: ✓ GC ___ HPLC

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were all samples associated with a given method blank?
Y N N/A Was a method blank performed for each matrix and whenever a sample extraction procedure was performed?
Y N N/A Was a method blank performed with each extraction batch?
Y N N/A Were any contaminants found in the method blanks? If yes, please see findings below.

Level IV/D Only

Y N N/A (Gasoline and aromatics only)Was a method blank analyzed with each 24 hour batch?
Y N N/A Was a method blank analyzed for each analytical / extraction batch of ≤20 samples?

Blank extraction date: ______ **Blank analysis date:** 3/31/06 **Associated samples:** 1→7
Conc. units: mg/L

Compound	Blank ID	Sample Identification						
	06G1483-MB-01	~~1~~	~~2~~	~~3~~	~~4~~	5	6	~~7~~
PHC as Gasoline	0.01	0.~~01~~/0.05U	0.~~02~~/0.05U	0.~~02~~/0.05U	0.~~04~~/0.05U	0.03/0.05U	0.03/0.05U	~~0.05U~~

Blank extraction date: ______ **Blank analysis date:** 4/4/06 **Associated samples:** 8
Conc. units: mg/L

Compound	Blank ID	Sample Identification						
	~~06G1499-MB-01~~	~~8~~						
~~PHC as Gasoline~~	~~0.02~~	~~0.01~~/0.05U						

ALL CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 1 3A8
SDG #: 06-1934

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1/1
Reviewer: [illegible]
2nd Reviewer: ______

METHOD: ___ GC ___ HPLC

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds within 10% of the reported results?

Concentration= $\frac{(A)(Fv)(Df)}{(RF)(Vs\ or\ Ws)(\%S/100)}$

A= Area or height of the compound to be measured
Fv= Final Volume of extract
Df= Dilution Factor
RF= Average response factor of the compound in the initial calibration
Vs= Initial volume of the sample
Ws= Initial weight of the sample
%S= Percent Solid

Example:

Sample ID.______________ Compound Name ______________________________

Concentration = ____

all ND

#	Sample ID	Compound	Reported Concentrations ( )	Recalculated Results Concentrations ( )	Qualifications

Comments: ____

SAMPCALew.wpd

LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

CDM Federal Programs
9444 Farnham Street, Suite 210
San Diego, CA 92123
ATTN: Mr. Mike Higman

May 12, 2006

SUBJECT: MCAS El Toro, Data Validation

Dear Mr. Higman,

Enclosed is the final validation report for the fraction listed below. This SDG was received on April 25, 2006. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 14890:

SDG #	Fraction
E6C270220	Volatiles

The data validation was performed under NFESC Level III and Level IV guidelines. The analyses were validated using the following documents, as applicable to each method:

- NFESC Special Publication SP-2056-ENV, Navy Installation Restoration Chemical Data Quality Manual, Naval Facilities Engineering Command, September 1999
- USEPA, Contract Laboratory Program National Functional Guidelines for Organic Data Review, October 1999

The data validators did utilize their professional judgement when evaluating the data to achieve the most complete and accurate assessment of the data. The data packages were reviewed according to the above stated validation procedures.

For volatile analyses, no data was qualified as unusable.

In general, the data for all analyses appear usable with the limitations noted in the Data Validation Reports. Data validation flags were noted on the Laboratory Form 1s and included with each validation report.

Sincerely,

ERauto

Erlinda T. Rauto
Operations Manager/Senior Chemist

V:\LOGIN\CDM\Toro\14890COV.wpd

Attachment 1

LDC #14890 (CDM Federal Programs Corp.-San Diego / MCAS El Toro, IRP-16)

LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (TO-14A)																																			
Matrix: Air/Water/Soil				A	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	E6C270220	04/25/06	05/16/06	5	0																																		
A	E6C270220	04/25/06	05/16/06	2	0																																		
Total	B/LR			7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7

Shaded cells indicate Level IV validation (all other cells are Level III validation). These sample counts do not include MS/MSD, and DUPs

MCAS El Toro
Data Validation Reports
LDC# 14890

Volatiles

LDC Report# 14890A48

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro

Collection Date: March 23, 2006

LDC Report Date: May 5, 2006

Matrix: Air

Parameters: Volatiles

Validation Level: NFESC Level III & IV

Laboratory: Severn Trent Laboratories

Sample Delivery Group (SDG): E6C270220

Sample Identification

16_VMI-SG-123
16_VMI-SG-223**
16_MPEI-SG-223
16_MPEI-SG-123**
16_MW07-SG-123
16_MW07-SG-223
16_MPEI-SG-323

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 7 air samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method TO-14A for Volatiles.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999); the following subsections correlate to the above guidelines.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XVI.

Samples indicated by a double asterisk on the front cover underwent a NFESC Level IV review. A NFESC Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 24 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds with the following exceptions:

Date	Compound	%RSD	Associated Samples	Flag	A or P
10/6/05	Chloromethane Vinyl acetate	30.403 34.485	All samples in SDG E6C270220	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P

Average relative response factors (RRF) for all volatile target compounds and system monitoring compounds were within validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 30.0% .

All of the continuing calibration RRF values were within validation criteria.

V. Blanks

Method blank analyses were performed at the required frequency. No volatile contaminants were found in the method blanks.

No field blanks were identified in this SDG.

VI. Surrogate Spikes

Surrogates were not required by the method.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) analyses were not required by the method.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were analyzed at the required frequency. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

Samples 16_MPEI-SG-123** and 16_MPEI-SG-323 were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ppbv)		RPD
	16_MPEI-SG-123**	16_MPEI-SG-323	
1,1,2-Trichloro-1,2,2-trifluoroethane	55	90	48
Acetone	120U	260	200
cis-1,2-Dichloroethene	100	150	40
Trichloroethene	4200	5400	25
Xylenes, total	25U	42	200

MCAS El Toro
Volatiles - Data Qualification Summary - SDG E6C270220

SDG	Sample	Compound	Flag	A or P	Reason
E6C270220	16_VMI-SG-123 16_VMI-SG-223** 16_MPEI-SG-223 16_MPEI-SG-123** 16_MW07-SG-123 16_MW07-SG-223 16_MPEI-SG-323	Chloromethane Vinyl acetate	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	P	Initial calibration (%RSD)

MCAS El Toro
Volatiles - Laboratory Blank Data Qualification Summary - SDG E6C270220

No Sample Data Qualified in this SDG

MCAS El Toro
Volatiles - Field Blank Data Qualification Summary - SDG E6C270220

No Sample Data Qualified in this SDG

LDC #: 14890A48

SDG #: E6C270220

Laboratory: Severn Trent Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level III/IV

Date: 5/04/06
Page: 1 of 1
Reviewer: JVG
2nd Reviewer: Q

METHOD: GC/MS Volatiles (EPA Method TO-14A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3/23/06
II.	GC/MS Instrument performance check	A	24 hrs
III.	Initial calibration	SW	
IV.	Continuing calibration /ICV	A	
V.	Blanks	A	
VI.	Surrogate spikes	N	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	A	LCS/D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	Not reviewed for Level III validation.
XII.	Compound quantitation/CRQLs	A	Not reviewed for Level III validation.
XIII.	Tentitatively identified compounds (TICs)	N	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D = 4, 7
XVII.	Field blanks	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet
ND = No compounds detected
R = Rinsate
FB = Field blank
D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

Air

1	16_VMI-SG-123	11	6096327 MB	21		31	
2	16_VMI-SG-223**	12		22		32	
3	16_MPEI-SG-223	13		23		33	
4	16_MPEI-SG-123** D	14		24		34	
5	16_MW07-SG-123	15		25		35	
6	16_MW07-SG-223	16		26		36	
7	16_MPEI-SG-323 D	17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

LDC #: 14890A48
SDG #: E6C270220

VALIDATION FINDINGS CHECKLIST

Reviewer: JVG
2nd Reviewer: [illegible]

Method: Volatiles (EPA Method TO-14/TO-14A)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Canister pressure criteria was met.	✓			
II. GC/MS Instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 30% and relative response factors (RRF) ≥ 0.05?		✓		
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) ≤ 30% and relative response factors (RRF) ≥ 0.05?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within QC limits?			✓	NR
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			✓	
VII. Matrix spike/Matrix spike duplicates				
Was a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for this SDG?		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			

LDC #: 14890 A48
SDG #: E6C 276220

VALIDATION FINDINGS CHECKLIST

Reviewer: JVG
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Internal standards				
Were internal standard area counts within +/-40% from the associated calibration standard?	✓			
Were retention times within +/- 30.0 seconds from the associated calibration standard?	✓			
XI. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XII. Compound quantitation/CRQLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			✓	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			✓	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?		✓		
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target compounds were detected in the field duplicates.	✓			
XVII. Field blanks				
Field blanks were identified in this SDG.		✓		
Target compounds were detected in the field blanks.			✓	

TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA Method TO-14/TO-14A)

A. Chloromethane*	S. Trichloroethene	KK. Trichlorofluoromethane	CCC. tert-Butylbenzene	UUU. Benzyl chloride
B. Bromomethane	T. Dibromochloromethane	LL. Methyl-tert-butyl ether	DDD. 1,2,4-Trimethylbenzene	VVV. 4-Ethyltoluene
C. Vinyl choride**	U. 1,1,2-Trichloroethane	MM. 1,2-Dibromo-3-chloropropane	EEE. sec-Butylbenzene	WWW. Ethanol
D. Chloroethane	V. Benzene	NN. Diethyl ether	FFF. 1,3-Dichlorobenzene	XXX. Ethyl ether
E. Methylene chloride	W. trans-1,3-Dichloropropene	OO. 2,2-Dichloropropane	GGG. p-Isopropyltoluene	YYY. tert-Butanol
F. Acetone	X. Bromoform*	PP. Bromochloromethane	HHH. 1,4-Dichlorobenzene	ZZZ. tert-Butyl alcohol
G. Carbon disulfide	Y. 4-Methyl-2-pentanone	QQ. 1,1-Dichloropropene	III. n-Butylbenzene	AAAA. Ethyl tert-butyl ether
H. 1,1-Dichloroethene**	Z. 2-Hexanone	RR. Dibromomethane	JJJ. 1,2-Dichlorobenzene	BBBB. tert-Amyl methyl ether
I. 1,1-Dichloroethane*	AA. Tetrachloroethene	SS. 1,3-Dichloropropane	KKK. 1,2,4-Trichlorobenzene	CCCC. 1-Chlorohexane
J. 1,2-Dichloroethene, total	BB. 1,1,2,2-Tetrachloroethane*	TT. 1,2-Dibromoethane	LLL. Hexachlorobutadiene	DDDD. Isopropyl alcohol
K. Chloroform**	CC. Toluene**	UU. 1,1,1,2-Tetrachloroethane	MMM. Naphthalene	EEEE. Acetonitrile
L. 1,2-Dichloroethane	DD. Chlorobenzene*	VV. Isopropylbenzene	NNN. 1,2,3-Trichlorobenzene	FFFF. Acrolein
M. 2-Butanone	EE. Ethylbenzene**	WW. Bromobenzene	OOO. 1,3,5-Trichlorobenzene	GGGG. Acrylonitrile
N. 1,1,1-Trichloroethane	FF. Styrene	XX. 1,2,3-Trichloropropane	PPP. trans-1,2-Dichloroethene	HHHH. 1,4-Dioxane
O. Carbon tetrachloride	GG. Xylenes, total	YY. n-Propylbenzene	QQQ. cis-1,2-Dichloroethene	IIII. Isobutyl alcohol
P. Bromodichloromethane	HH. Vinyl acetate	ZZ. 2-Chlorotoluene	RRR. m,p-Xylenes	JJJJ. Methacrylonitrile
Q. 1,2-Dichloropropane**	II. 2-Chloroethylvinyl ether	AAA. 1,3,5-Trimethylbenzene	SSS. o-Xylene	KKKK. Propionitrile
R. cis-1,3-Dichloropropene	JJ. Dichlorodifluoromethane_	BBB. 4-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	LLLL.

* = System performance check compounds (SPCC) for RRF ; ** = Calibration check compounds (CCC) for %RSD.

LDC #: [illegible]90A78
SDG #: E6C270220

VALIDATION FINDINGS WORKSHEET
Initial Calibration

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA TO-14/TO-14A)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Did the laboratory perform a 5 point calibration prior to sample analysis?

Y N N/A Were all percent relative standard deviations (%RSD) ≤ 30% and relative response factors (RRF) ≥ 0.05?

#	Date	Standard ID	Compound	Finding %RSD (Limit: ≤30.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
	10/06/05	ICAL	A	30.403		All + Blk	J/UJ/P
			HH	34.485		↓	↓

LDC #: 14890A48
SDG #: EGC270220

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: JYC
2nd reviewer: d

METHOD: GC/MS VOA (EPA TO-14/TO-14A)

Y N N/A Were field duplicate pairs identified in this SDG?
Y N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration (ppb v/v)		(≤ 50%) RPD (Parent only)
	4	7	
TTT	55	90	48 J det/A
F	120 U	260	200 J/UJ/A
QQQ	100	150	40 J det/A
S	4200	5400	25
GG	25 U	42	200 J/UJ/A

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

Compound	Concentration ( )		RPD

LDC #: 14890 A48
SDG #: EGC270220

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: QR
2nd Reviewer: d

METHOD: GC/MS VOA (EPA TO-14/TO-14A)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

RRF = $(A_x)(C_{is})/(A_{is})(C_x)$
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

A_x = Area of compound,
C_x = Concentration of compound,
S = Standard deviation of the RRFs
X = Mean of the RRFs

A_{is} = Area of associated internal standard
C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported RRF (50 std)	Recalculated RRF (50 std)	Reported Average RRF (initial)	Recalculated Average RRF (initial)	Reported %RSD	Recalculated %RSD
1	ICAL	10/06/05	Methylene chloride (1st internal standard)	0.73987	0.73987	0.77691	0.77691	14.972	14.972
			Trichlorethene (2nd internal standard)	0.52676	0.52676	0.53291	0.53291	19.041	19.041
			~~Toluene~~ BB (3rd internal standard)	1.24232	1.24232	1.17985	1.17985	15.398	15.398
2			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						
3			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						
4			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						
			Toluene (3rd internal standard)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14890A48
SDG #: EGC270220

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: JVG
2nd Reviewer: Q

METHOD: GC/MS VOA (EPA TO-15)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = $(A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (Initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	CC04033	4/03/06	Methylene chloride (1st internal standard)	0.77691	0.74267	0.74267	4.4	4.4
			Trichlorethene (2nd internal standard)	0.53291	0.49607	0.49607	6.9	6.9
			~~Toluene~~ BB (3rd internal standard)	1.17985	1.26465	1.26465	7.2	7.2
2			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					
3			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					
4			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					
			Toluene (3rd internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14890 A48
SDG #: EGC 270220

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: JVG
2nd reviewer: Q

METHOD: GC/MS VOA (EPA Method TO-15)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(DF)}{(A_{is})(RRF)(V_o)(\%S)}$

A_x = Area of the characteristic ion (EICP) for the compound to be measured
A_{is} = Area of the characteristic ion (EICP) for the specific internal standard
I_s = Amount of internal standard added in nanograms (ng)
RRF = Relative response factor of the calibration standard.
V_o = Volume or weight of sample pruged in milliliters (ml) or grams (g).
Df = Dilution factor.
%S = Percent solids, applicable to soils and solid matrices only.

Example:

Sample I.D. # 4 , S :

Conc. = $\frac{(6138363)(50)(12.39)}{(1696193)(0.53291)(\ )(\ )}$

= 4207.0 ppb v/v

ug/L = $\frac{(4207)(131.39)}{(1000)(24.45)}$ = 22.6 ≈ 23 ug/L

#	Sample ID	Compound	Reported Concentration ( )	Calculated Concentration ( )	Qualification

LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2L Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

CDM Federal
9444 Farnham Street, Suite 210
San Diego, CA 92123
ATTN: Mr. Michael Higman

May 24, 2006

SUBJECT: MCAS El Toro CTO 084, Data Validation

Dear Mr. Higman,

Enclosed is the final validation report and Excel qualification sheet for the fractions listed below. This SDG were received on May 18th, 2006.

LDC project# 14993:

SDG #	Fraction
158637, 159123	Gross alpha & beta (Method EPA 900.0)

The following deliverables are submitted under this report:

- Attachment I — Sample ID Cross Reference and Data Review Level
- Attachment II — Overall Data Qualification Summary
- Attachment III — CDM Database Qualification Summary
- Enclosure I — EPA Level III ADR Outliers (including manual review outliers)
- Enclosure II — EPA Level IV DVR (manual review)

The data validation was performed in accordance to the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004. Where specific guidance is not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience. The following items were evaluated during the review:

- Holding Times
- Sample Preservation
- Cooler Temperatures
- Initial Calibration (Manual Review)
- Continuing Calibration (Manual Review)
- Blanks
- Matrix Spike/Matrix Spike Duplicates
- Laboratory Control Samples
- Detection and Quantitation Limits
- Field QC Samples

Please feel free to contact us if you have any questions.

Sincerely,

Erlinda T. Rauto
Operations Manager/Senior Chemist

Attachment I

Sample ID Cross Reference and Data Review Level

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
15-Mar-2006	03_DGMW64A-123	158637013	N	Gen Prep	E900	III
15-Mar-2006	03_DGMW65XA-123	158637008	N	Gen Prep	E900	III
15-Mar-2006	03_DGMW65XA-323	158637009	FD	Gen Prep	E900	III
15-Mar-2006	05_DBMW41A-123	158637012	N	Gen Prep	E900	III
16-Mar-2006	05_DGMW68A-123DUP	1201061683	DUP	Gen Prep	E900	III
16-Mar-2006	05_DGMW68A-123MS	1201061684	MS	Gen Prep	E900	III
16-Mar-2006	05_DGMW68A-123MSD	1201061690	MSD	Gen Prep	E900	III
16-Mar-2006	05_DGMW68A-123	158637007	N	Gen Prep	E900	IV
16-Mar-2006	04_DGMW66A-123	158637004	N	Gen Prep	E900	III
16-Mar-2006	02_NEW8A-123	158637010	N	Gen Prep	E900	III
16-Mar-2006	04_UGMW63-123	158637011	N	Gen Prep	E900	III
16-Mar-2006	02NEW7-123	158637005	N	Gen Prep	E900	IV
16-Mar-2006	02NEW7-323	158637006	FD	Gen Prep	E900	III
17-Mar-2006	05NEW1-123	158637002	N	Gen Prep	E900	III
17-Mar-2006	05_DGMW67A-123DUP	1201061671	DUP	Gen Prep	E900	III
17-Mar-2006	05_DGMW67A-123MS	1201061672	MS	Gen Prep	E900	III
17-Mar-2006	05_DGMW67A-123MSD	1201061681	MSD	Gen Prep	E900	III
17-Mar-2006	05_DGMW67A-123	158637001	N	Gen Prep	E900	IV
17-Mar-2006	04_DBMW40-123	158637003	N	Gen Prep	E900	IV
21-Mar-2006	02_DGMW59-123DUP	1201066825	DUP	Gen Prep	E900	III
21-Mar-2006	02_DGMW59-123MS	1201066826	MS	Gen Prep	E900	III
21-Mar-2006	02_DGMW59-123MSD	1201066828	MSD	Gen Prep	E900	III
21-Mar-2006	02_DGMW59-123	159123002	N	Gen Prep	E900	III
21-Mar-2006	02_NEW11-123DUP	1201066836	DUP	Gen Prep	E900	III
21-Mar-2006	02_NEW11-123MS	1201066837	MS	Gen Prep	E900	III
21-Mar-2006	02_NEW11-123MSD	1201066839	MSD	Gen Prep	E900	III

III = EPA Level 3 Data Review
IV = EPA Level 4 Data Validation
N = Normal Sample
FD = Field Duplicate
TB = Trip Blank
FB = Field Blank
MS = Matrix Spike
MSD = Matrix Spike Duplicate

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
21-Mar-2006	02_NEW11-123	159123001	N	Gen Prep	E900	III
22-Mar-2006	02NEW15-123	159123004	N	Gen Prep	E900	III
22-Mar-2006	02NEW16-123	159123005	N	Gen Prep	E900	III
22-Mar-2006	02_NEW2-123	159123003	N	Gen Prep	E900	III

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Attachment II

Overall Data Qualification Summary

Overall Qualified Results

Analytical Method	Field Sample ID	Matrix	Sample Type	Analyte	RL	Lab Result	Unc / Error	Overall Qualifier	Units	Reason Code
SDG: 158637										
E900	02_NEW8A-123	AQ	N							
				ALPHA	3.00	25.4	5.93	J	pCi/L	
E900	02NEW7-123	AQ	N							
				ALPHA	3.00	28.2	2.80	J	pCi/L	
E900	02NEW7-323	AQ	N							
				ALPHA	3.00	26.8	2.90	J	pCi/L	
E900	03_DGMW64A-123	AQ	N							
				ALPHA	3.00	21.5	2.87	J	pCi/L	
E900	03_DGMW65XA-123	AQ	N							
				ALPHA	3.00	31.2	9.29	J	pCi/L	
E900	03_DGMW65XA-323	AQ	FD							
				ALPHA	3.00	23.9	3.78	J	pCi/L	
E900	04_DBMW40-123	AQ	N							
				ALPHA	3.00	16.7	2.53	J	pCi/L	
E900	04_DGMW66A-123	AQ	N							
				ALPHA	3.00	31.7	3.13	J	pCi/L	
E900	04_UGMW63-123	AQ	N							
				ALPHA	3.00	17.1	6.28	J	pCi/L	
E900	05_DBMW41A-123	AQ	N							
				ALPHA	3.00	15.6	4.73	J	pCi/L	
E900	05_DGMW67A-123	AQ	N							
				ALPHA	3.00	10.4	1.99	J	pCi/L	
E900	05_DGMW68A-123	AQ	N							
				ALPHA	3.00	26.4	6.63	J	pCi/L	
E900	05NEW1-123	AQ	N							
				ALPHA	3.00	12.5	2.10	J	pCi/L	
SDG: 159123										
E900	02_NEW11-123	AQ	N							
				ALPHA	3.00	5.31	3.12	J	pCi/L	

N = Normal Sample *TB = Trip Blank*
FD = Field Duplicate *FB = Field Blank*

Attachment III

CDM Database Qualification Summary

CDM Federal Programs Corporation

Project No # : 14993

Reason for Qualified Results

SDG Nos. : 158637,159123

Sample Del Group (SDG)	Sample ID	Test Method	CAS No.	Detected Qualifier	Non Detected Qualifier	Analyte Name	Reason
158637	02_NEW8A-123	E900	12587461	J		ALPHA	Matrix spike recovery
158637	02NEW7-123	E900	12587461	J		ALPHA	Matrix spike recovery
158637	02NEW7-323	E900	12587461	J		ALPHA	Matrix spike recovery
158637	03_DGMW64A-123	E900	12587461	J		ALPHA	Matrix spike recovery
158637	03_DGMW65XA-123	E900	12587461	J		ALPHA	Matrix spike recovery
158637	03_DGMW65XA-323	E900	12587461	J		ALPHA	Matrix spike recovery
158637	04_DBMW40-123	E900	12587461	J		ALPHA	Matrix spike recovery
158637	04_DGMW66A-123	E900	12587461	J		ALPHA	Matrix spike recovery
158637	04_UGMW63-123	E900	12587461	J		ALPHA	Matrix spike recovery
158637	05_DBMW41A-123	E900	12587461	J		ALPHA	Matrix spike recovery
158637	05_DGMW67A-123	E900	12587461	J		ALPHA	Matrix spike recovery
158637	05_DGMW68A-123	E900	12587461	J		ALPHA	Matrix spike recovery
159123	02_NEW11-123	E900	12587461	J		ALPHA	Matrix spike recovery

Enclosure I

EPA Level III ADR Outliers (including Manual Review Outliers)

Quality Control Outlier Reports

SDG 158637

(Note: the following were based on manual validation findings)

QC Outlier Report: Field Duplicates (Non-qualified Outliers)

Lab Report Batch: 158637 **Lab ID:** GEL

			Field Sample				Field Sample Duplicate						
Analysis Method	**Matrix**	**Analyte Name**	**Client Sample ID**	**Ana Type**	**Result**	**Lab Qualifier**	**Client Sample Duplicate ID**	**Ana Type**	**Result**	**Lab Qualifier**	**RPD Dup* (%)**	**RPD Criteria (%)**	**Result Units**
E900	AQ	ALPHA	03_DGMW65XA-1	RES	31.2		03_DGMW65XA-3	RES	23.9		26.5	20	pCi/L

**Note:* *Outlier report also includes analytes detected in one sample but not in the related sample, i.e., analyte was detected in the field sample but not in the field duplicate sample, or vice versa. In this case, RPD value assigned to the field duplicate sample is 200.*

Project Number and Name: ***6218-999-002-AL TO12 - MCAS El Toro***

Quality Control Outlier Reports

SDG 159123

(Note: the following were based on manual validation findings)

LDC #: 14993B22 **VALIDATION COMPLETENESS WORKSHEET** Date: 5-23-06
SDG #: 159123 Level III Page: 1 of 1
Laboratory: General Engineering Laboratories, LLC Reviewer: MG
2nd Reviewer: MH

METHOD: Gross Alpha & Beta (EPA SW 846 Method 900.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3-21-06 through 3-22-06
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	A	
IVa.	Matrix Spike/(Matrix Spike) Duplicates	SW	MS/MSD/DUP (Dup error ratio < 1.42: No Qual)
IVb.	Laboratory control samples	A	LCS
V.	Minimum dectectable activity (MDA)	N	
VI.	Sample result verification	N	
VII.	Overall assessment of data	N	
VIII.	Field duplicates	N	(None)
IX	Field blanks	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet
ND = No compounds detected
R = Rinsate
FB = Field blank
D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples:
all water

1	02_NEW11-123	11 1	02_DGMW59-123DUP	21		31	
2 1	02_DGMW59-123	12		22		32	
3 1	02_NEW2-123	13		23		33	
4 1	02NEW15-123	14		24		34	
5 1	02NEW16-123	15		25		35	
6	02_NEW11-123MS	16		26		36	
7	02_NEW11-123MSD	17	PBW1	27		37	
8	02_NEW11-123DUP	18		28		38	
9 1	02_DGMW59-123MS	19		29		39	
10 1	02_DGMW59-123MSD	20		30		40	

Notes:

LDC #: 14993B22
SDG #: 159123

VALIDATION FINDINGS WORKSHEET
Matrix Spike Analysis

Reviewer: MG
2nd Reviewer: MN

METHOD: Radiochemistry (Method: 900.0)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A — Was a matrix spike analyzed at the required frequency in this SDG?

Y N N/A — Were matrix spike percent recoveries (%R) within the control limits of 75-125? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

LEVEL IV ONLY:

Y N N/A — Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	Matrix Spike ID	Matrix	Analyte	MS %R	MSD %R	Associated Samples	Qualifications
1	6/7	water	Gross Alpha	55 (75-125)	68 (75-125)	1	J/UJ/A

Comments:

MS.35

Version 1.0 (3/2/2000)

Enclosure II

EPA Level IV Validation Reports

LDC Report# 14993A22

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS El Toro, CTO 084

Collection Date: March 15 through March 17, 2006

LDC Report Date: May 24, 2006

Matrix: Water

Parameters: Gross Alpha and Beta

Validation Level: NFESC Level III & IV

Laboratory: General Engineering Laboratories, LLC.

Sample Delivery Group (SDG): 158637

Sample Identification

05_DGMW67A-123**
04_DBMW40-123**
02NEW7-123**
05_DGMW68A-123**
05_DGMW67A-123MS
05_DGMW67A-123MSD
05_DGMW68A-123MS
05_DGMW68A-123MSD
05_DGMW68A-123DUP
05_DGMW67A-123DUP

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 10 water samples listed on the cover sheet. The analyses were per EPA SW 846 Method 900.0 for Gross Alpha and Beta Radioactivity.

The review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section III.

Field duplicates are summarized in Section VIII.

Samples indicated by a double asterisk on the front cover underwent a NFESC Level IV review. A NFESC Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U	Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
J	Indicates an estimated value.
R	Quality control indicates the data is not usable.
N	Presumptive evidence of presence of the constituent.
UJ	Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
A	Indicates the finding is based upon technical validation criteria.
P	Indicates the finding is related to a protocol/contractual deviation.
None	Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

All criteria for the initial calibration were met.

Detector efficiency was determined and a self-absorption curve was generated for each radionuclide of interest.

b. Continuing Calibration

Calibration verification and background determination were performed at the required frequencies. Results were within laboratory control limits.

III. Blanks

Method blanks were reviewed for each matrix as applicable. Blank results contained less than the minimum detectable activity (MDA).

No field blanks were identified in this SDG.

IV. Accuracy and Precision Data

a. Matrix Spike/(Matrix Spike) Duplicate

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
05_DGMW67A-123MS/MSD (05_DGMW67A-123** 04_DBMW40-123** 02NEW7-123**)	Gross alpha	72 (75-125)	-	-	J (all detects) UJ (all non-detects)	A
05_DGMW68A-123MS/MSD (05_DGMW68A-123**)	Gross alpha	59 (75-125)	59 (75-125)	-	J (all detects) UJ (all non-detects)	A

b. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

V. Minimum Detectable Activity (MDA)

All minimum detectable activities met required detection limits.

VI. Sample Result Verification

All sample result verifications were acceptable for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

VII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

VIII. Field Duplicates

Samples 02NEW7-123** and 02NEW7-323 were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Analyte	Concentration (pCi/L)		RPD (Limits)	Flag	A or P
	02NEW7-123**	02NEW7-323			
Gross alpha	28.2	26.8	5 (≤20)	-	-
Gross beta	10.3	10.2	1 (≤20)	-	-

MCAS El Toro, CTO 084
Gross Alpha and Beta - Data Qualification Summary - SDG 158637

SDG	Sample	Analyte	Flag	A or P	Reason
158637	05_DGMW67A-123** 04_DBMW40-123** 02NEW7-123** 05_DGMW68A-123**	Gross alpha	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)

MCAS El Toro, CTO 084
Gross Alpha and Beta - Laboratory Blank Data Qualification Summary - SDG 158637

No Sample Data Qualified in this SDG

MCAS El Toro, CTO 084
Gross Alpha and Beta - Field Blank Data Qualification Summary - SDG 158637

No Sample Data Qualified in this SDG

LDC #: 14993A22 **VALIDATION COMPLETENESS WORKSHEET** Date: 5-23-06

SDG #: 158637 Level III/IV Page: 1 of 1

Laboratory: General Engineering Laboratories, LLC Reviewer: MG

2nd Reviewer: [illegible]

METHOD: Gross Alpha & Beta (EPA SW 846 Method 900.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 3-15-06 through 3-17-06
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	A	
IVa.	Matrix Spike/(Matrix Spike) Duplicates	SW	MS/MSD/DUP (Dup error ratio < 1.42 No Qual)
IVb.	Laboratory control samples	A	LCS
V.	Minimum dectectable activity (MDA)	A	
VI.	Sample result verification	A	Not reviewed for Level III validation.
VII.	Overall assessment of data	A	
VIII.	Field duplicates	SW	D= 5+6 , ~~D=8+9~~
IX	Field blanks	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet
ND = No compounds detected
R = Rinsate
FB = Field blank
D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

all water

1 1	05_DGMW67A-123**	11	~~04_UGMW63-123~~	21 1	PBW1	31	
2 1	~~05NEW1-123~~	12	05_DGMW41A-123	22 2	PBW2	32	
3 1	04_DBMW40-123**	13	~~03_DGMW64A-123~~	23		33	
4 1	~~04_DGMW66A-123~~	14 1	05_DGMW67A-123MS	24		34	
5 1	02NEW7-123**	15 1	05_DGMW67A-123MSD	25		35	
6 1	~~02NEW7-323~~	16	05_DGMW68A-123MS	26		36	
7	05_DGMW68A-123**	17	05_DGMW68A-123MSD	27		37	
8	~~03_DGMW65XA-123~~	18	05_DGMW68A-123DUP	28		38	
9	03_DGMW65XA-323	19 1	05_DGMW67A-123DUP	29		39	
10	~~02_NEW8A-123~~	20		30		40	

Notes:

LDC #: 14993A22
SDG #: 158637

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2
Reviewer: MG
2nd Reviewer: My

Method: Radiochemistry(EPA Method 900.0)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
II. Calibration				
Were all instruments and detectors calibration as required?	✓			
Were NIST traceable standards used for all calibrations?	✓			
Was the check source identified by activity and radionuclide?	✓			
Were check sources including background counts analyzed at the requiried frequency and within laboratory control limits?	✓			
III. Blanks				
Were blank analyses performed as required?	✓			
Were any activities detected in the blanks greater than the minimum detectable activity (MDA)? If yes, please see the Blanks validation completeness worksheet.		✓		
IV. Matrix spikes and Duplicates				
Were a matrix spike (MS) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS percent recoveries (%R) within the QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.		✓		
Was a duplicate sample anayized at the required frequency of 5% in this SDG?	✓			
Were all duplicate sample duplicate error rations (DER) $\leq$1.42?.	✓			
V. Laboratory control samples				
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 75-125%	✓			
VI. Sample Chemical/Carrier Recovery				
Was a tracer/carrier added to each sample?		✓		
Were tracer/carrier recoveries within the QC limits?			✓	
VII. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
VIII. Sample Result Verification				
Were activities adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were the Minimum Detectable Activities (MDA) < RL?	✓			

LDC #: 14993A22
SDG #: 158637

VALIDATION FINDINGS CHECKLIST

Reviewer: MG
2nd Reviewer: W

Validation Area	Yes	No	NA	Findings/Comments
IX. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
X. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target analytes were detected in the field duplicates.	✓			
XI. Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: .993A22
SDG #: 158637

VALIDATION FINDINGS WORKSHEET
Matrix Spike Analysis

Page: 1 of 1
Reviewer: MG
2nd Reviewer: M

METHOD: Radiochemistry (Method: 900.0)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A — Was a matrix spike analyzed at the required frequency in this SDG? (Y)

Y N N/A — Were matrix spike percent recoveries (%R) within the control limits of 75-125? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken. (N)

LEVEL IV ONLY:

Y N N/A — Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations. (Y)

#	Matrix Spike ID	Matrix	Analyte	MS %R	MSD %R	Associated Samples	Qualifications
1	14/15	Water	Gross Alpha	72 (75-125)		1, 3, 5	J/UJ/A
2	16/17	↓	↓	59 (↓)	59 (75-125)	7	↓

Comments:

MS.35

Version 1.0 (3/2/2000)

LDC #: 14993A22
SDG #: 158637

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: MG
2nd reviewer: [illegible]

METHOD: Radiochemistry (Method: 900.0)

Y N N/A Were field duplicate pairs identified in this SDG?
Y N N/A Were target isotopes detected in the field duplicate pairs?

Isotopes	Activity (pCi/L)		RPD
	5	6	
Gross Alpha	28.2	26.8	5 (≤20)
Gross Beta	10.3	10.2	1 (≤20)

Isotopes	Activity ( )		RPD

Isotopes	Activity ( )		RPD

Isotopes	Activity ( )		RPD

LDC #: 14993A22
SDG #: 158637

VALIDATION FINDINGS WORKSHEET
Detector Efficiency Calculation Verification

Page: 1 of 1
Reviewer: MG
2nd Reviewer: My

METHOD: Radiochemistry (Method: 900.0)

The detector efficiency for instrument # A1 was recalculated using the following equation:

$$E = \frac{(cpm)}{(dpm)}$$

Where, cpm = counts per minute
dpm = decays per minute

Type of Analysis	Analyte	Recalculation	Recalculated E or MDA	Reported E or MDA	Acceptable (Y/N)
Detector Efficiency	Th-230 for Gross α	E = for 56.5 mg $\frac{3080.6 \text{ (cpm)}}{21085.6 \text{ (dpm)}} = 0.14610$	0.1461	0.1461	Y

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14993A22
SDG #: 158637

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Page: 1 of 1
Reviewer: MG
2nd Reviewer: [illegible]

METHOD: Radiochemistry (Method: 900.0)

Percent recoveries (%R) for a laboratory control sample, a matrix spike and a matrix spike duplicate sample were recaluculated using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = activity of each analyte measured in the analysis of the sample.
True = activity of each analyte in the source.

A matrix spike and matrix spike duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$ Where, S = Original sample activity
D = Duplicate sample activity

Sample ID	Type of Analysis	Analyte	Found/S (units)	True/D (units)	Recalculated %R or RPD	Reported %R or RPD	Acceptable (Y/N)
LCS	Laboratory control sample	Gross α	178 (pCi/L)	144 (pCi/L)	124	124	Y
14	Matrix spike sample	Gross β	490.5 (pCi/L)	422 (pCi/L)	116	116	↓
19	Duplicate RPD	Gross α	10.4 (pCi/L)	12.7 (pCi/L)	20	20	↓
—	Chemical recovery	—	—	—	—	—	—

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 14993A22
SDG #: 158637

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: MG
2nd reviewer: MW

METHOD: Radiochemistry (Method: 900.0)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Have results been reported and calculated correctly?.
Y N N/A Are results within the calibrated range of the instruments?

Analyte results for #1, Gross α reported with a positive detect were recalculated and verified using the following equation:

Activity = $\frac{\text{(cpm - bckgrd cpm)}}{(2.22)(E)(Vol)(CF)}$

Recalculation:

$$\frac{0.2570 - \left[\left(\frac{669}{500}\right)(0.00289)\right]}{(2.22)(0.1460)(0.075\,L)} = 10.413 \text{ pCi/L}$$

E = Efficiency
Vol = Volume
CF = %R, Self-absorbance, abundance, ect.

#	Sample ID	Analyte	Reported Concentration (pCi/L)	Calculated Concentration (pCi/L)	Acceptable (Y/N)
1	1	gross α	10.4	10.4	Y
		gross β	7.52	7.60	↓

Note:

Applied P & Ch Laboratory

APCL

13760 Magnolia Ave. Chino CA 91710
Tel: (909) 590-1828 Fax: (909) 590-1498

Chain of Custody

Please Print in pen Page 2 of 2

Client: [illegible] Contact: [illegible] Moss Tel #: [illegible] 269-[illegible] Fax #: [illegible] 269 [illegible]

Address: [illegible] Fairmount St. Ste 210 City: San Diego State: CA Zip code: [illegible]

Bill to: [illegible]

Project Name/Code [illegible] Job #: [illegible] 084 P.O. #

Project Address [illegible]

APCL Quotation #

Due Date: ☒ regular ☐ rush: ___ days ___ hours Sampled by: C. Moss

White – With report
Yellow – Lab copy
Pink – Originator

Field Sample ID No.	Sample Description	Date Collected	Time Collected	Sample Matrix	Preservation	# of Containers	Analysis Items												Remarks
	[illegible] 123	[illegible]	[illegible]2	[illegible]	[illegible]CL	[illegible]	X												
	03-DGMW[illegible]HA 123	7/15/06	[illegible]250	[illegible]	HCL	[illegible]	X												
	03-DGMW[illegible]HA 123	7/15/06	[illegible]	Water	HNO_3	1		X											
	03-DGMW[illegible]HA 123	7/15/06	[illegible]	Water	HNO_3	1			X										
	03-DGMW[illegible]HA 123	7/15/06	1545	Water	HNO_3	1		X											
	03-DGMW[illegible]HA 123	7/15/06	[illegible]250	Water	HNO_3	1			X										
	03-DGMW[illegible]HA 123	7/15/06	[illegible]250	Water	None	1					X								

QC Requirement: ☐ Regular; ☐ QA/QC Report; ☐ WIP; ☐ Raw Data; ☒ Extended Raw Data ☐ CLP; ☐ ACE ☐ AFCEE ☐ NEESA ___ (E, C or D); ☐ Other _________ (Please specify)

Sample Disposal: ☐ Return ☒ Disposal by APCL ☐ Hold for _____ days after receiving date. If not specified, samples will be discarded 45 days after samples are received.

Sample Conditions: ☐ Intact; ☐ Broken. Cooler Seal: ☐ Intact; ☐ Broken; ☐ None. Tag # __________ Temperature: ☐ Room ☐ Cold (_____ °C).

Relinquished by [illegible]	Date/Time 7/16/06 / 16:07	Received by [illegible]	Date/Time 7/16/06 / 1607
Relinquished by	Date/Time /	Received by	Date/Time /

APCL USE ONLY Service # Note:

Applied P & Ch Laboratory

APCL

13760 Magnolia Ave. Chino CA 91710
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Chain of Custody

Please Print in pen Page 1 of 2

Client: [illegible] Contact: [illegible] Tel #: [illegible] 3383 Fax #: [illegible] 77

Address: [illegible] 210 City: [illegible] State: CA Zip code: [illegible]

Bill to: [illegible]

Project Name/Code [illegible] Job # [illegible] P.O. #

Project Address [illegible] APCL Quotation #

Due Date: ☒ regular ☐ rush: ____ days ____ hours Sampled by: [illegible]

Analysis Items

White – With report
Yellow – Lab copy
Pink – Originator

Field Sample ID No.	Sample Description	Date Collected	Time Collected	Sample Matrix	Preservation	# of Containers	[illegible]	[illegible]	[illegible]	[illegible]	Remarks
	[illegible]-MW22[illegible]-123	[illegible]/16/06	1234	Water	None	2			X		[illegible] 331
	[illegible]-MW2[illegible] 123	1/16/06	[illegible]54	Water	HCL	2	X				
	02-NLW[illegible]-123	1/16/06	1203	Water	HNO3	1				X	
	[illegible]W8A 123	1/16/06	[illegible]	Water	HNO3	1		X			
	[illegible] MW8A 123	1/16/06	[illegible]	Water	HCL	2	X				
	[illegible]-DGMW3 123	1/16/06	[illegible]	Water	[illegible]	1		X			
	[illegible] 3 123	1/16/06	~~[illegible]~~ [illegible]	[illegible]	HCL	2	X				
	[illegible]-DGMW63-123	1/16/06	[illegible]	Water	HNO3	1				X	
	~~[illegible]~~ BT1-123	1/16/06	—	Water	HCL	2	X				Trip Blanks
	[illegible] DGM[illegible]-123	1/16/06	0917	Water	HCL	2	X				
	[illegible]-DGMW 11A 123	1/15/06	1548	Water	HCL	2	X				
	[illegible]3-DGMW 5XA 123	1/15/06	[illegible]15	Water	HCL	2	X				
	03 DG[illegible] 123	1/15/06	[illegible]	Water	HCL	2	X				
	[illegible]2 MW07 523	1/16/06	[illegible]	Water	HCL	2	X				
	[illegible]MW6A 123	1/16/06	[illegible]21	Water	HCL	2	X				

QC Requirement: ☐ Regular; ☐ QA/QC Report; ☐ WIP; ☐ Raw Data; ☒ Extended Raw Data ☐ CLP; ☐ ACE ☐ AFCEE ☐ NEESA ____ (E, C or D); ☐ Other __________ (Please specify)

Sample Disposal: ☐ Return ☒ Disposal by APCL ☐ Hold for ______ days after receiving date. If not specified, samples will be discarded 45 days after samples are received.

Sample Conditions: ☐ Intact; ☐ Broken. Cooler Seal: ☐ Intact; ☐ Broken; ☐ None. Tag # ___________ Temperature: ☐ Room ☐ Cold (______ °C).

Relinquished by [illegible] Nguyen	Date/Time 1/16/06 / 16:07	Received by [illegible]	Date/Time 1/16/06 / 1607
Relinquished by	Date/Time /	Received by	Date/Time /

APCL USE ONLY Service # Note:

Clients understand that all terms described in the proposals, quotations for this project, and/or the general terms provided in the current APCL price schedules will be followed. APCL reserves the right to terminate service or withhold delivery of any reports, if in APCL's sole discretion the terms of the project have been broken.

APCL Form 4-101. Ver. 4.0. Dec. 20. 1994.

Applied P & Ch Laboratory

APCL

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Cooler 1 of 2

Chain of Custody

Please Print in pen Page 1 of 1

Client: CDM Federal Programs Contact: Mike Higman Tel #: 858-268-3383 Fax #: 858-268-9677

Address: 9444 Farnham St. Ste 210 City: San Diego State: CA Zip code: 92123

Bill to: Same

Project Name/Code 6218-084 Job # P.O. #

Project Address MCAS El Toro APCL Quotation #

Due Date: ☒regular ☐rush: ___ days ___ hours Sampled by: Dave Lange

Analysis Items: Metals w/HNO3; Cross Alkalinity w/HNO3; Gen Chemistry (No preserv.)

White – With report
Yellow – Lab copy
Pink – Originator

Field Sample ID No.	Sample Description	Date Collected	Time Collected	Sample Matrix	Preservation	# of Containers	Metals w/HNO3	Cross Alkalinity w/HNO3	Gen Chemistry (No preserv.)	Remarks
04_DGMW	66A-123	3/16/06	1121	Water	—	2	1	1		
02NEW7 -	123	3/16/06	1402	Water	—	2	1	1		
02NEW7 -	323	3/16/06	1408	Water	—	2	1	1		
05_DGMW	8A-123	3/16/06	0917	Water	—	2	1	1		
03-DGMW	65XA-123	3/15/06	1345	Water	—	3	1	1	1	
03_DGMW	65XA-323	3/15/06	1348	Water	—	3	1	1	1	

DL
3/16/06

QC Requirement: ☐Regular; ☐QA/QC Report; ☐WIP; ☐Raw Data; ☒Extended Raw Data ☐CLP; ☐ACE ☐AFCEE ☐NEESA ___(E, C or D); ☐Other ________ (Please specify)

Sample Disposal: ☐Return ☒Disposal by APCL ☐Hold for ______ days after receiving date. If not specified, samples will be discarded 45 days after samples are received.

Sample Conditions: ☐Intact; ☐Broken. Cooler Seal: ☐Intact; ☐Broken; ☐None. Tag # ________ Temperature: ☐Room ☐Cold (______ °C).

Relinquished by [illegible signature] Date/Time 3/16/06 / 1607 Received by [illegible signature] Date/Time 3/16/06 / 1607

Relinquished by Date/Time / Received by Date/Time /

APCL USE ONLY Service # Note:

Clients und[erstan]d that all terms described in the proposals, quotations for this project, and/or the g[eneral] terms provided in the current APCL price schedules will be followed. APCL reserve[s the r]ight to terminate ... service or withhold delivery of any reports, if in APCL's sole discretion the terms of the project have been broken.

Applied P & Ch Laboratory

APCL

13760 Magnolia Ave. Chino CA 91710
Tel: (909) 590-1828 Fax: (909) 590-1498

Chain of Custody

Please Print in pen Page ____ of ____

Client: CDM Contact: Curtis Moss Tel #: 858.589.7548 Fax #: 858.268.3677

Address: City: San Diego State: CA Zip code: 92123

Bill to: CDM Denver

Project Name/Code MCAS El Toro GWM Job # 6218.034 P.O. #

Project Address MCAS El Toro APCL Quotation #

Due Date: ☒ regular ☐ rush: ____ days ____ hours Sampled by: AN

White – With report
Yellow – Lab copy
Pink – Originator

Field Sample ID No.	Sample Description	Date Collected	Time Collected	Sample Matrix	Preservation	# of Containers	VOCs 8260B	Metals	General Chem	Gross Alpha Beta	Remarks
	05_DGMW67A-123	3/17/06	0935	WATER	HCl	2	X				
	"		"		HNO_3	2		X		X	
	"		"		None	1			X		VOCs 8260B + MTBE
	05NCW1-123		0830		HCl	2	X				
	"		"		HNO_3	2		X		X	Gen Chem 310, 310.1, 160.1
	"		"		None	1			X		
	01_DBMW40-123		1052		HCl	2	X				Metals [illegible] 6010
	"		"		HNO_3	2		X		X	
	BT2-123				HCl	2	X				Gross Alpha Beta EPA 900

Curtis Moss 3/17/06

QC Requirement: ☐ Regular; ☐ QA/QC Report; ☐ WIP; ☐ Raw Data; ☐ Extended Raw Data ☐ CLP; ☐ ACE ☐ AFCEE ☐ NEESA ___ (E, C or D); ☐ Other ________ (Please specify)

Sample Disposal: ☐ Return ☒ Disposal by APCL ☐ Hold for ______ days after receiving date. If not specified, samples will be discarded 45 days after samples are received.

Sample Conditions: ☐ Intact; ☐ Broken. Cooler Seal: ☐ Intact; ☐ Broken; ☐ None. Tag # ________ Temperature: ☐ Room ☐ Cold (_____ °C).

Relinquished by Curtis Moss Date/Time 3/17/06 / 1410 Received by [illegible] Date/Time 3/17/06 / [illegible]

Relinquished by Date/Time / Received by Date/Time /

APCL USE ONLY Service # Note:

APCL

Applied P & Ch Laboratory

13760 Magnolia Ave. Chino CA 91710
Tel: (909) 590-1828 Fax: (909) 590-1498

Chain of Custody

Please Print in pen

Client: CDM Contact: Curtis Moss Tel #: 858.869.7548 Fax #: 858.268.9677

Address: 9444 Farnham St Ste 210 City: San Diego State: CA Zip code: 92123

Bill to: CDM Denver

Project Name/Code MCAS El Toro Job # 6215,084 P.O. #

Project Address MCAS El Toro APCL Quotation #

Due Date: ☒ regular ☐ rush: ___ days ___ hours Sampled by: AN

White – With report
Yellow – Lab copy
Pink – Originator

Field Sample ID No.	Sample Description	Date Collected	Time Collected	Sample Matrix	Preservation	# of Containers	VOCs CLP	Metals CLP	Gen Chem										Remarks
	17NEW1-123	3/20/06	1124	WATER	HCl	2	X												
	"	"	"	"	HNO3	1		X											
	"	"	"	"	None	1			X										
	BT03-923			"	HCl	2	X												

Curtis Moss 3/20/06

QC Requirement: ☐ Regular; ☐ QA/QC Report; ☐ WIP; ☐ Raw Data; ☐ Extended Raw Data ☐ CLP; ☐ ACE ☐ AFCEE ☐ NEESA ___ (E, C or D); ☐ Other ________ (Please specify)

Sample Disposal: ☐ Return ☒ Disposal by APCL ☐ Hold for ______ days after receiving date. **If not specified, samples will be discarded 45 days after samples are received.**

Sample Conditions: ☐ Intact; ☐ Broken. Cooler Seal: ☐ Intact; ☐ Broken; ☐ None. Tag # ________ Temperature: ☐ Room ☐ Cold (______ °C).

Relinquished by Curtis Moss	Date/Time 3/20/06 / 1542	Received by [illegible]	Date/Time 3/20/06 / 1542
Relinquished by	Date/Time /	Received by	Date/Time /

APCL USE ONLY Service # Note:

Cooler 1

Applied P & Ch Laboratory

Chain of Custody

APCL

13760 Magnolia Ave. Chino CA 91710
Tel: (909) 590-1828 Fax: (909) 590-1498

858-869-7548 cm

Please Print in pen

Page 1 of 1

Client: CDM Contact: Curt Moss Tel #: ~~92123~~ Fax #: 858-268-9677

Address: 9444 Farnham St. Ste 210 City: San Diego State: CA Zip code: 92123

Bill to: CDM Denver

Project Name/Code MCAS El Toro Job # 6218.084 P.O. #

Project Address MCAS El Toro APCL Quotation #

Due Date: ☒ regular ☐ rush: ___ days ___ hours Sampled by: AN

Analysis Items

White – With report
Yellow – Lab copy
Pink – Originator

Field Sample ID No.	Sample Description	Date Collected	Time Collected	Sample Matrix	Preservation	# of Containers	VOCs CLP	Metals CLP	Gross Alpha Beta								Remarks
	02_NEW11-123	3/21/06	1546	WATER	HCl	2	X										
	"	"	"	"	HNO_3	2		X	X								
	02_DGMW59-123	"	1101	"	HCl	2	X										
02_DGMW59-123 MS/MSD		"	1101	"	HCl	4	X										
	"	"	1101	"	HNO_3	4		X	X								
	02_DGMW59-123	"	1101	"	HNO_3	2		X	X								
	BTL-923			"	HCl	2	X										

QC Requirement: ☐ Regular; ☐ QA/QC Report; ☐ WIP; ☐ Raw Data; ☐ Extended Raw Data ☐ CLP; ☐ ACE ☐ AFCEE ☐ NEESA ___ (E, C or D); ☐ Other ________ (Please specify)

Sample Disposal: ☐ Return ☒ Disposal by APCL ☐ Hold for ______ days after receiving date. **If not specified, samples will be discarded 45 days after samples are received.**

Sample Conditions: ☐ Intact; ☐ Broken. Cooler Seal: ☐ Intact; ☐ Broken; ☐ None. Tag # ________ Temperature: ☐ Room ☐ Cold (______ °C).

Relinquished	by Curtis Moss	Date/Time 3/22/06 / 1525	Received	by [signature]	Date/Time 3/22/06 / 1525
Relinquished	by	Date/Time /	Received	by	Date/Time /

APCL USE ONLY Service # Note:

Cooler 2

Applied P & Ch Laboratory

APCL

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Tel: (909) 590-1828 Fax: (909) 590-1498

Chain of Custody

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Client: CDM **Contact:** Curtis Moss **Tel #:** 8588697548 **Fax #:** 8582689677

Address: 9444 Farnham **City:** San Diego **State:** CA **Zip code:**

Bill to: CDM Denver

Project Name/Code MCAS El Toro **Job #** 6218.084 **P.O. #**

Project Address MCAS El Toro **APCL Quotation #**

Due Date: ☒ regular ☐ rush: ____ days ____ hours **Sampled by:** AN

White – With report
Yellow – Lab copy
Pink – Originator

Field Sample ID No.	Sample Description	Date Collected	Time Collected	Sample Matrix	Preservation	# of Containers	VOCs	Metals CLP	Gen Chem	Gross Alpha/Beta								Remarks
	02_NEW2-123	3/22/06	1122	Water	~~HCL~~ HNO3 AN	1		X										Needs filtering
	02_NEW2-123	3/22/06	1122	Water	HNO3	1				X								
	02_NEW2-123	3/22/06	1122	Water	HCL	2	X											
	17-DGMW82-123	3/22/06	1306	Water	None	1			X									
	17-DGMW82-123	3/22/06	1306	Water		1		X										[illegible] with [illegible] for genchem
	17-DGMW82-123	3/22/06	1306	Water	HCL	2	X											
	02NEW16-123	3/22/06	1016	Water	None	1			X									
	02NEW16-123	3/22/06	1016	Water	HCL	2	X											
	02NEW15-123	3/22/06	0917	Water	HNO3	1				X								
	02NEW15-123	3/22/06	0917	Water	~~HCL~~ HNO3 AN	1		X										
	02NEW15-123	3/22/06	0917	Water	HCL	2	X											
	02NEW16-123	3/22/06	1016	Water	HNO3	1		X										Needs filtering
	02NEW16-123	3/22/06	1016	Water	HNO3	1				X								
	BTS-923	3/22/06	—	Water	HCL	2	X											

QC Requirement: ☒ Regular (AN); ☐ QA/QC Report; ☐ WIP; ☐ Raw Data; ☐ Extended Raw Data ☐ CLP; ☐ ACE ☐ AFCEE ☐ NEESA ____ (E, C or D); ☐ Other ________ (Please specify)

Sample Disposal: ☐ Return ☒ Disposal by APCL ☐ Hold for ______ days after receiving date. **If not specified, samples will be discarded 45 days after samples are received.**

Sample Conditions: ☐ Intact; ☐ Broken. **Cooler Seal:** ☐ Intact; ☐ Broken; ☐ None. **Tag #** ____________ **Temperature:** ☐ Room ☐ Cold (______ °C).

Relinquished by Aiance Neigh **Date/Time** 3/22/06 / 1525 **Received by** [signature] **Date/Time** 3/22/06 / 1525

Relinquished by **Date/Time** / **Received by** **Date/Time** /

APCL USE ONLY **Service #** **Note:**

Clients und[...]d that all terms described in the proposals, quotations for this project, and/or the g[...] terms provided in the current APCL price schedules will be followed. APCL reserve[...]ight to terminate [...] service or withhold delivery of any reports, if in APCL's sole discretion the terms of the project have been broken.

Applied P & Ch Laboratory

APCL

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Tel: (909) 590-1828 Fax: (909) 590-1498

Chain of Custody

Please Print in pen Page 1 of 1

Client: CDM Contact: Curtis Moss Tel #: 858.869.7548 Fax #: 858.268.9677

Address: 9444 Farnham St Ste 210 City: San Diego State: Zip code: 92123

Bill to: CDM Denver

Project Name/Code MCAS El Toro GWM Job # 6218.084 P.O. #

Project Address MCAS El Toro APCL Quotation #

Due Date: ☒ regular ☐ rush: ___ days ___ hours Sampled by: AN

Analysis Items: VOCs CLP; TPH Gas 8015B; TPH Diesel 8015B

Field Sample ID No.	Sample Description	Date Collected	Time Collected	Sample Matrix	Preservation	# of Containers	VOCs CLP	TPH Gas 8015B	TPH Diesel 8015B									Remarks
	16-MW8-123	3/23/06	0919	WATER	HCl	4	X	X										
	"		"		None	1			X									
	16-MW3-123		1200		HCl	4	X	X										
	"		"		None	1			X									
	16-MW13-123	3/22/06	1640		HCl	4	X	X										
	"	3/22/06	"		None	1			X									
	BT6-923				HCl	2	X											

Curtis Moss 3/23/06

White – With report
Yellow – Lab copy
Pink – Originator

QC Requirement: ☐ Regular; ☐ QA/QC Report; ☐ WIP; ☐ Raw Data; ☐ Extended Raw Data ☐ CLP; ☐ ACE ☐ AFCEE ☐ NEESA ___ (E, C or D); ☐ Other ______ (Please specify)

Sample Disposal: ☐ Return ☒ Disposal by APCL ☐ Hold for ______ days after receiving date. If not specified, samples will be discarded 45 days after samples are received.

Sample Conditions: ☐ Intact; ☐ Broken. Cooler Seal: ☐ Intact; ☐ Broken; ☐ None. Tag # ______ Temperature: ☐ Room ☐ Cold (______ °C).

Relinquished by Curtis Moss Date/Time 3/23/06 / 1600 Received by [illegible signature] Date/Time 3/23/06 / 1600

Relinquished by Date/Time / Received by Date/Time /

APCL USE ONLY Service # Note:

Applied P & Ch Laboratory

APCL

13760 Magnolia Ave. Chino CA 91710
Tel: (909) 590-1828 Fax: (909) 590-1498

Chain of Custody

Please Print in pen Page 1 of ____

Client: CDM Contact: Mike Higman Tel #: 858.268.3383 Fax #: 858.268.9617

Address: 9444 Farnham St Ste 210 City: San Diego State: CA Zip code: 92123

Bill to: CDM Denver IRP Site 16

Project Name/Code: ~~MCAS El Toro GWM~~ Job # 6215.084 P.O. #

Project Address: MCAS El Toro APCL Quotation #

Due Date: ☒ regular ☐ rush: ____ days ____ hours Sampled by: MH

Analysis Items: VOCs TO-14A

White – With report
Yellow – Lab copy
Pink – Originator

Field Sample ID No.	Sample Description	Date Collected	Time	Sample Matrix	Preservation	# of Containers	VOCs TO-14A											Remarks
16_VMI-SG-123		3/23/06	0800	AIR	SUMMA	1	X											
16_VMI-SG-223		"	0830	"	"	1	X											
16_MPE1-SG-223		"	1310			1	X											
16_MPE1-SG-123		"	1250			1	X											
16_MW07-SG-123		"	1030			1	X											
16_MW07-SG-223		"	1100			1	X											
16_MPE1-SG-323		"	1400			1	X											

Curtis Moss 3/23/06

QC Requirement: ☐ Regular; ☐ QA/QC Report; ☐ WIP; ☐ Raw Data; ☐ Extended Raw Data ☐ CLP; ☐ ACE ☐ AFCEE ☐ NEESA ____ (E, C or D); ☐ Other ________ (Please specify)

Sample Disposal: ☐ Return ☒ Disposal by APCL ☐ Hold for ______ days after receiving date. If not specified, samples will be discarded 45 days after samples are received.

Sample Conditions: ☐ Intact; ☐ Broken. Cooler Seal: ☐ Intact; ☐ Broken; ☐ None. Tag # ________ Temperature: ☐ Room ☐ Cold (______ °C).

Relinquished by Curtis Moss Date/Time 3/23/06 / 1600 Received by [illegible] Date/Time 3/23/06 / 1600

Relinquished by Date/Time / Received by Date/Time /

APCL USE ONLY Service # Note:

APCL

Applied P & Ch Laboratory

13760 Magnolia Ave. Chino CA 91710
Tel: (909) 590-1828 Fax: (909) 590-1498

Chain of Custody

Please Print in pen **Page** 1 **of** 1

Client: CDM Federal Contact: Mike Hyman Tel #: 858 268 3383 Fax #:

Address: 9444 Farnham Dr. Ste 210 City: San Diego State: CA Zip code: 92123

Bill to: CDM Denver

Project Name/Code Job # 628.484 P.O. #

Project Address MCAS El Toro APCL Quotation # T.O. 12

Due Date: ☑ regular ☐ rush: ____ days ____ hours Sampled by: Curtis Moss

Analysis Items: CLP OLM 4.3; TPH-g; TPH-d

White – With report
Yellow – Lab copy
Pink – Originator

Field Sample ID No.	Sample Description	Date Collected	Time Collected	Sample Matrix	Preser-vation	# of Containers	CLP OLM 4.3	TPH-g	TPH-d										Remarks
	16 MW09-123	3/28/06	910	H_2O	HCL	5	X	X	X										
	16 MW05-123		1005			5													
	16-MW04-123		1105			5													
	16 MW11-123		1150			5													
	16 MW01-123		1411			5													
	16 MW01-323		1415			5													
	16 MPE1-123		1511			5													
	16 MPE1-323		1523			5													
	BT7-923					2	X												
	BT8-923					2	X												

Curtis Moss 3/28/06

QC Requirement: ☐ Regular; ☐ QA/QC Report; ☐ WIP; ☑ Raw Data; ☐ Extended Raw Data ☐ CLP; ☐ ACE ☐ AFCEE ☐ NEESA ____ (E, C or D); ☐ Other ________ (Please specify)

Sample Disposal: ☐ Return ☑ Disposal by APCL ☐ Hold for ______ days after receiving date. **If not specified, samples will be discarded 45 days after samples are received.**

Sample Conditions: ☐ Intact; ☐ Broken. Cooler Seal: ☐ Intact; ☐ Broken; ☐ None. Tag # ________ Temperature: ☐ Room ☐ Cold (______ °C).

Relinquished by Curtis Moss	Date/Time 3/28/06 / 1615	Received by [signature]	Date/Time 3/28/06 / 1615
Relinquished by	Date/Time /	Received by	Date/Time /

APCL USE ONLY Service # Note:

Clients understand that all terms described in the proposals, quotations for this project, and/or the general terms provided in the current APCL price schedules will be followed. APCL reserves the right to terminate service or withhold delivery of any reports, if in APCL's sole discretion the terms of the project have been broken.

APCL Form 4-101, Ver. 4.0, Dec. 20, 1994.

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6218-084 Round 23	SAMPLE LOCATION: 16-MW11
PROJECT NAME: MCAS El Toro	SAMPLE ID: 16-MW11-123
DATE: 3/28/06	SAMPLED BY: CM
EQUIPMENT DECONTAMINATED: YES	PURGE START TIME: 1135

PURGING METHOD: Micropurge Dedicated Bladder Pump

SAMPLING EQUIPMENT: QED MP20 Flow cell, MP30 compressor, MP10H Controller, MP20 Lamotte 2020 Turbidity Meter

Pump Intake Depth: NA	Purge Rate: 100 milliliters/minute	Minimum Purge Volume: 2026
Total Volume Removed: 3300ml	Controller Settings: Refill: 13 Discharge: 7 Pressure: 90	
Initial Groundwater Level: 154.48'	Controller Adjustment: 15 5 90	
Final Groundwater Level: 155.52'	Controller Adjustment: — — —	

Actual Time	Volume Purged mL	Temperature °C	pH	Conductance (ms/cm)	Dissolved oxygen mg/L	ORP	Turbidity NTu	Static Water Level	Description
1140	500	19.79	7.42	2.12	4.79	130	5.5	154.49	clear
1143	800	19.53	7.31	2.13	4.92	128	5.4	154.49	clear
1146	1100	19.56	7.26	2.14	4.94	126	5.3	—	"
1149	1400	19.88	7.16	2.14	4.80	123	5.2	155.52	"
1152	1700	20.16	7.08	2.14	4.64	117	5.3		"
1155	2000	19.96	7.00	2.14	4.53	113	5.3	155.52	"
1156	2100	—	—	sample	—	—	—	—	—
1208	3300	—	—	End Sampling	—	—	—	—	—
				CM 3/28/06					

Total Volume Purged: 2100 mL Total Time: 33 min.

Laboratory Analysis: VOCs (X) Metals Filtered ( ) General chemistry ( ) Gross Alpha/Beta ( ) Nitrite ( )
Other TPH gas & diesel

Total number of bottles: 5

Comments: Chemetrics DO = 4.0

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

QA Check

Field Member	Date	Initials
Sample Collector	3/28/06	CM
Sample Coordinator	4/3/06	AMN

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: **6218-084 Round 23**	SAMPLE LOCATION: 16_MW09
PROJECT NAME: **MCAS El Toro**	SAMPLE ID: 16-MW09-123
DATE: 3/28/06	SAMPLED BY: CM
EQUIPMENT DECONTAMINATED: **YES**	PURGE START TIME: 0846

PURGING METHOD: **Micropurge Dedicated Bladder Pump**

SAMPLING EQUIPMENT: **QED MP20 Flow cell, MP30 compressor, MP10~~H~~ Controller, MP20 Lamotte 2020 Turbidity Meter**

Pump Intake Depth: NA	Purge Rate: **100 milliliters/minute**	Minimum Purge Volume: 2086 ml
Total Volume Removed: 3400 ml	Controller Settings: Refill: 13 Discharge: 7 Pressure: 80	
Initial Groundwater Level: 150.21	Controller Adjustment: 10.5 9.5 80	
Final Groundwater Level: 150.32	Controller Adjustment: — — —	

Actual Time	Volume Purged mL	Temperature °C	pH	Conductance (ms/cm)	Dissolved oxygen mg/L	ORP mV	Turbidity NTu	Static Water Level	Description
0850	400	18.83	7.49	1.51	4.60	261	4.99	150.24	clear
0854	800	20.12	7.43	1.52	4.63	258	4.87	150.24	"
0858	1200	20.47	7.36	1.53	4.24	247	4.82	—	"
0902	1600	20.42	7.33	1.53	4.46	242	4.85	150.23	"
0906	2000	20.91	7.29	1.54	4.33	221	4.83	—	"
0910	2400	— Sample —							
0920	3400	— END Sampling —							

Curtis Hwy[illegible]

Total Volume Purged: 2400 ml | Total Time: ~~36~~ CM 3/28/06 min. 34

Laboratory Analysis: VOCs (X) Metals Filtered ( ) General chemistry ( ) Gross Alpha/Beta ( ) Nitrite ( )
Other TPH gas & diesel

Total number of bottles: 5

Comments: Chemetrics Field Test DO = 4

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

QA Check

Field Member	Date	Initials
Sample Collector	3/28/06	CM
Sample Coordinator	4/3/06	AMN

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

CM 3/28/06

PROJECT NO.: 6218-084 Round 23	SAMPLE LOCATION: 16_ ~~MW5~~ MW05
PROJECT NAME: MCAS El Toro	SAMPLE ID: 16 CM ~~MW~~5-123 MW05
DATE: 3/28/06	SAMPLED BY: CM
EQUIPMENT DECONTAMINATED: YES	PURGE START TIME: 0947

PURGING METHOD: Micropurge Dedicated Bladder Pump

SAMPLING EQUIPMENT: QED MP20 Flow cell, MP30 compressor, MP10X Controller, MP20
Lamotte 2020 Turbidity Meter

Pump Intake Depth: NA	Purge Rate: 100 milliliters/minute	Minimum Purge Volume: 2026 ml	
Total Volume Removed: 3200 ml	Controller Settings: Refill: 14	Discharge: 6	Pressure: 100
Initial Groundwater Level: 151.80'	Controller Adjustment: —	—	—
Final Groundwater Level: 151.81'	Controller Adjustment:		

Actual Time	Volume Purged mL	Temperature °C	pH	Conductance (ms/cm)	Dissolved oxygen mg/L	ORP mV	Turbidity NTu	Static Water Level	Description
0950	300	19.45	7.80	0.879	5.42	116	1.01	151.80	clear
0955	800	20.41	7.57	0.948	5.06	113	0.71	151.83	clear
0958	1100	21.20	7.23	1.042	4.29	116	0.89	151.81	"
1001	1400	21.16	7.16	1.096	3.89	121	1.05	151.81	"
1004	1700	21.54	7.15	1.099	3.77	124		—	"
1009	2200	Sample							
1019	3200	End sample							
					CM 3/28/06				

Total Volume Purged: 2200 ml | Total Time: ~~36~~ CM 3/28/06 min 32

Laboratory Analysis: VOCs (X) Metals Filtered ( ) General chemistry ( ) Gross Alpha/Beta ( ) Nitrite ( )
Other TPH gas & diesel

Total number of bottles: 5

Comments: DO = 4.5

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

QA Check

Field Member	Date	Initials
Sample Collector	3/28/06	CM
Sample Coordinator	4/3/06	AWN

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: **6218-084 Round 23**	SAMPLE LOCATION: 16_MPE1
PROJECT NAME: **MCAS El Toro**	SAMPLE ID: 16-MPE1-123
DATE: 3/28/06	SAMPLED BY: CM
EQUIPMENT DECONTAMINATED: **YES**	PURGE START TIME: 1450

PURGING METHOD: **Micropurge Dedicated Bladder Pump**

SAMPLING EQUIPMENT: **QED MP20 Flow cell, MP30 compressor, MP10H Controller, MP20 Lamotte 2020 Turbidity Meter**

Pump Intake Depth: N/A	Purge Rate: **100 milliliters/minute**	Minimum Purge Volume: 2026
Total Volume Removed: 4700 ml	Controller Settings: Refill: 13 Discharge: 7 Pressure: 90	
Initial Groundwater Level: 159.84	Controller Adjustment: — — —	
Final Groundwater Level: 159.90	Controller Adjustment:	

Actual Time	Volume Purged mL	Temperature °C	pH	Conductance (ms/cm)	Dissolved oxygen mg/L	ORP	Turbidity NTu	Static Water Level	Description
1455	500	19.31	6.59	1.75	3.57	-29	see	159.94	slightly cloudy
1458	800	19.18	6.77	1.73	2.88	-30	comments	—	"
1501	1100	19.64	6.84	1.73	2.20	-41		—	"
1504	1400	20.34	6.86	1.73	2.13	-43		159.94	"
1507	1700	20.49	6.87	1.72	1.98	-45		—	"
1510	2000	20.47	6.85	1.72	1.89	-44		—	"
1511	2100	—	sampled						
1523 ~~1515~~	~~2300~~ ~~2900~~ 3500	—	duplicate sample taken						
1535	4700	—	End sampling						
			Cathy Cross						

Total Volume Purged: 2100 ml | Total Time: ~~47~~ 45 min. AN 4/3/06

Laboratory Analysis: VOCs (X) Metals Filtered ( ) General chemistry ( ) Gross Alpha/Beta ( ) Nitrite ( )
Other TPH gas & diesel

Total number of bottles: 10

Comments: turbidity meter malfunction

QC Sample Collected? Yes (X) No ( ) If YES, then type of sample and sample ID: 16_MPE1-323

QA Check

Field Member	Date	Initials
Sample Collector	3/28/06	CM
Sample Coordinator	4/3/06	AMN

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

cm 3/28/06

PROJECT NO.: 6218-084 Round 23	SAMPLE LOCATION: 16 ~~MWI~~ MW01
PROJECT NAME: MCAS El Toro	SAMPLE ID: 16 ~~MWI~~ 123 cm MW01
DATE: 3/28/06	SAMPLED BY: CM
EQUIPMENT DECONTAMINATED: YES	PURGE START TIME: 1350

PURGING METHOD: Micropurge Dedicated Bladder Pump

SAMPLING EQUIPMENT: QED MP20 Flow cell, MP30 compressor, MP10H Controller, MP20 Lamotte 2020 Turbidity Meter

Pump Intake Depth: N/A	Purge Rate: 100 milliliters/minute	Minimum Purge Volume: 1985
Total Volume Removed: 4500ml	Controller Settings: Refill: 22 Discharge: ~~8~~ 4 Pressure: 80	
Initial Groundwater Level: 159.02'	Controller Adjustment: 14 6 90	
Final Groundwater Level: 159.30	Controller Adjustment: — — —	

Actual Time	Volume Purged mL	Temperature °C	pH	Conductance (ms/cm)	Dissolved oxygen mg/L	ORP mV	Turbidity NTu	Static Water Level	Description
1352	200	20.13	6.61	1.94	4.35	-49	see comments	—	clear
1355	500	19.53	6.79	1.94	4.91	-41		159.21	"
1358	800	21.51	6.82	1.92	3.30	-44		159.30	"
1401	1100	19.94	6.83	1.93	3.75	-39		—	"
1404	1400	19.06	6.80	1.92	3.34	-37		—	"
1407	1700	18.92	6.80	1.93	2.97	-36		—	"
1410	2000	18.45	6.79	1.92	3.38	-34		159.30	"
1411	2100	—	—	Sample	—	—	—	—	—
1435	4500	—	—	End Sampling	—	—	—	—	—
				~~Cuder Uyes~~					

Total Volume Purged: 2100 ml	Total Time: 45 min.

Laboratory Analysis: VOCs (X) Metals Filtered ( ) General chemistry ( ) Gross Alpha/Beta ( ) Nitrite ( )
Other CHEMETRICS FIELD TEST C-7512 FOR D.O. = 2.5 mg/L

Total number of bottles: 10

Comments: turbidity meter will not operate properly

QC Sample Collected? Yes (X) No ( ) If YES, then type of sample and sample ID: 16-MW01-323

Dup. sampled at ~~1415~~ 1423

QA Check

Field Member	Date	Initials
Sample Collector	3/28/06	CM
Sample Coordinator	4/3/06	AMN

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG cm 3/28/06

PROJECT NO.: **6218-084 Round 23**	SAMPLE LOCATION: 16-~~MW4~~ MW04
PROJECT NAME: **MCAS El Toro**	SAMPLE ID: 16-~~MW4~~ MW04-123 cm
DATE: 3/28/06	SAMPLED BY: cm
EQUIPMENT DECONTAMINATED: **YES**	PURGE START TIME: 1043

PURGING METHOD: **Micropurge Dedicated Bladder Pump**

SAMPLING EQUIPMENT: **QED MP20 Flow cell, MP30 compressor, MP10~~H~~ Controller, MP20 Lamotte 2020 Turbidity Meter**

Pump Intake Depth: NA	Purge Rate: **100 milliliters/minute**	Minimum Purge Volume: 2026
Total Volume Removed: 3400 ml	Controller Settings: Refill: 16 Discharge: 4	Pressure: 90
Initial Groundwater Level: 151.~~19~~ 40 cm	Controller Adjustment: —	— —
Final Groundwater Level: 151.30	Controller Adjustment:	

Actual Time	Volume Purged mL	Temperature °C	pH	Conductance (ms/cm)	Dissolved oxygen mg/L	ORP mV	Turbidity NTu	Static Water Level	Description
1046	300	20.36	8.06	0.865	4.50	116	0.31	151.25	clear
1049	600	20.59	8.00	0.895	4.39	117	0.33	151.30	"
1052	900	20.60	7.94	0.910	4.32	118	0.95	151.30	"
1055	1200	20.58	7.86	0.917	4.12	119	0.46	151.30	"
1058	1500	20.62	7.66	0.921	3.84	122	0.48	151.30	"
1101	1800	20.68	7.56	0.924	3.63	123	0.47	—	"
1104	2100	~~Sample~~ cm							
	cm	~~End sampling~~							
1104	2100	20.76	7.51	0.924	3.46		0.47	—	"
1105	2200 cm —	Sample	—						
1117	3400	—	End	sampling	—				
—				Cu/As	cross	—			

Total Volume Purged: 2200 ml | Total Time: 34 min

Laboratory Analysis: VOCs (X) Metals Filtered ( ) General chemistry ( ) Gross Alpha/Beta ( ) Nitrite ( )
Other TPH gas & diesel

Total number of bottles: 5

Comments:

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

QA Check

Field Member	Date	Initials
Sample Collector	3/28/06	cm
Sample Coordinator	4/3/06	AMN

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6218-084 Round 23	SAMPLE LOCATION: 16MW8
PROJECT NAME: MCAS El Toro	SAMPLE ID: 16MW8-123
DATE: 3/23/06	SAMPLED BY: A. Neigh
EQUIPMENT DECONTAMINATED: YES	PURGE START TIME: 0857

PURGING METHOD: Micropurge Dedicated Bladder Pump

SAMPLING EQUIPMENT: QED MP20 Flow cell, MP30 compressor, MP10H Controller, MP20
Lamotte 2020 Turbidity Meter

Pump Intake Depth: —	Purge Rate: 100 milliliters/minute	Minimum Purge Volume: 2086
Total Volume Removed: —	Controller Settings: Refill: 14	Discharge: 6 Pressure: 80
Initial Groundwater Level: ~~153.56'~~ AN 152.56'	Controller Adjustment: 12	8 90
Final Groundwater Level: ~~153.57~~ 152.57	Controller Adjustment: —	— —

subtracted 1" for the new well locks

Actual Time	Volume Purged mL	Temperature °C	pH	Conductance (ms/cm)	Dissolved oxygen mg/L	ORP	Turbidity NTu	Static Water Level	Description
0902	500mL	22.61	6.92	1.214	5.76	121	0.25	—	clear
0905	800mL	22.92	6.70	1.290	6.09	124	1.39	153.56	clear
0908	1100mL	22.96	6.67	1.295	6.17	125	5.22	—	clear
0911	1400mL	23.08	6.63	1.305	6.15	127	6.18	—	clear
0913	1600mL	23.10	6.61	1.307	5.88	128	~~1.28~~ AN 2.19	—	clear
0916	1900mL	23.19	6.60	1.309	6.01	128	2.69	—	clear
0918	2100mL	23.25	6.59	1.314	6.03	128	2.46	—	clear
0919	2200mL		Start	Sampling					
0931	3400mL		End	Sampling					
									3/23/06

Total Volume Purged: 3400mL Total Time: 34 min.

Laboratory Analysis: VOCs (X) Metals Filtered ( ) General chemistry ( ) Gross Alpha/Beta ( ) Nitrite ( )
Other TPH-gas
TPH-diesel

Total number of bottles: 5

Comments: DO=5

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

QA Check

Field Member	Date	Initials
Sample Collector	3/23/06	AMN
Sample Coordinator	3/24/06	CM

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: **6218-084 Round 23**	SAMPLE LOCATION: 16MW03
PROJECT NAME: **MCAS El Toro**	SAMPLE ID: 16MW03-123
DATE: 3/23/06	SAMPLED BY: A. Neigh
EQUIPMENT DECONTAMINATED: **YES**	PURGE START TIME: 1133

PURGING METHOD: **Micropurge Dedicated Bladder Pump**

SAMPLING EQUIPMENT: **QED MP20 Flow cell, MP30 compressor, MP10H Controller, MP20 Lamotte 2020 Turbidity Meter**

Pump Intake Depth: —	Purge Rate: **100 milliliters/minute**	Minimum Purge Volume: 2026
Total Volume Removed: 3300 mL	Controller Settings: Refill: 14 Discharge: 6 Pressure: 90	
Initial Groundwater Level: 157.14'	Controller Adjustment: 13 7 90	
Final Groundwater Level: 157.16'	Controller Adjustment: 14 6 90	

Actual Time	Volume Purged mL	Temperature °C	pH	Conductance (ms/cm)	Dissolved oxygen mg/L	ORP	Turbidity NTu	Static Water Level	Description
1138	500mL	24.97	7.18	0.074	5.78	110	2.07	157.14	clear
1141	300mL	23.77	6.89	0.888	4.91	106	1.93	—	clear
1144	600mL	23.89	6.82	0.892	5.41	-97	0.95	—	clear
1147	900mL	24.07	6.71	0.930	6.64	-95	1.26	157.16	clear
1150	1200mL	24.31	6.77	0.949	6.48	-88	0.14	—	clear
1153	1500mL	24.36	6.17	0.959	6.41	-87	0.25	—	clear
1156	1800mL	24.46	6.78	0.966	6.35	-79	0.25	157.14	clear
1159	2100mL	24.48	6.78	0.967	6.34	-78	0.25	—	clear
1200	~~3300mL~~ 2200mL AN	Start Sampling							
1212	3300mL	End Sampling							
									3/23/06

Total Volume Purged: 2200mL	Total Time: 39 min.

Laboratory Analysis: VOCs (X) Metals Filtered ( ) General chemistry ( ) Gross Alpha/Beta ( ) Nitrite ( )
Other TPH-diesel
TPH-gas

Total number of bottles: 5

Comments: DO=5.5

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

QA Check

Field Member	Date	Initials
Sample Collector	3/23/06	AMN
Sample Coordinator	3/24/06	CM

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: **6218-084 Round 23**	SAMPLE LOCATION: 16MW13
PROJECT NAME: **MCAS El Toro**	SAMPLE ID: 16MW13-123
DATE: 3/22/06	SAMPLED BY: A. Neigh
EQUIPMENT DECONTAMINATED: **YES**	PURGE START TIME: ~~1618~~ AN 1618

PURGING METHOD: **Micropurge Dedicated Bladder Pump**

SAMPLING EQUIPMENT: **QED MP20 Flow cell, MP30 compressor, MP10H Controller, MP20 Lamotte 2020 Turbidity Meter**

Pump Intake Depth: —	Purge Rate: **100 milliliters/minute**	Minimum Purge Volume: 2026
Total Volume Removed: 3400mL	Controller Settings: Refill: 13 Discharge: 7 Pressure: 80	
Initial Groundwater Level: 154.02	Controller Adjustment: — — —	
Final Groundwater Level: 154.00	Controller Adjustment: — — —	

Actual Time	Volume Purged mL	Temperature °C	pH	Conductance (ms/cm)	Dissolved oxygen mg/L	ORP	Turbidity NTu	Static Water Level	Description
1623	500mL	23.02	6.16	2.06	7.06	137	0.99	154.00	clear
1626	800mL	23.19	6.04	2.07	7.13	139	1.15	—	clear
1628	1000mL	23.12	5.98	2.08	7.30	142	0.76	—	clear
1631	1300mL	23.11	5.99	2.07	5.99	143	1.84	—	clear
1634	1600mL	23.03	6.00	2.08	5.91	143	1.44	—	clear
1636	1800mL	23.07	6.00	2.09	5.99	143	1.45	—	clear
1639	2100mL	23.06	6.01	2.08	6.00	143	1.48	—	clear
1640	2200mL	Start Sampling							
1652	3400mL	End Sampling							
								3/22/06	

Total Volume Purged: 2200mL | Total Time: 34 min.

Laboratory Analysis: VOCs (X) Metals Filtered ( ) General chemistry ( ) Gross Alpha/Beta ( ) Nitrite ( )
Other TPH-fuel (diesel & gas)

Total number of bottles: 5

Comments: DO = 5.5

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

QA Check

Field Member	Date	Initials
Sample Collector	3/22/06	AMN
Sample Coordinator	3/24/06	CM

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: **6218-084 Round 23**	SAMPLE LOCATION: 02NEW7
PROJECT NAME: **MCAS El Toro**	SAMPLE ID: 02NEW7-123
DATE: 3/16/06	SAMPLED BY: DL
EQUIPMENT DECONTAMINATED: **YES**	PURGE START TIME: 1337

PURGING METHOD: Submersible Pump

Well Casing Diameter 4" ( ) 5" (X) 6" ( )

: Total Volume Removed: 99 gal

Well Total Depth		Original DTW				4"=0.66 5"=0.93 6"=1.5		Casing Volume		Purge Volume
148	-	122.41	=	25.6	x		=	23.8	X 3 casg vol.	= 71.4

Initial Groundwater Level: 122.41

Final Groundwater Level: 122.62

Actual Time	Volume Purged	Temperature	pH	Conductance (mS/cm)	Dissolved oxygen (mg/L)	ORP	Turbidity NTu	Description
1340	9	21.66	7.64	1.28	6.50	94	1.20	Clear
1343	18	21.33	7.04	1.26	4.76	111	1.0	
1348	33	21.24	7.18	1.24	6.39	90	1.12	
1351	42	20.95	7.17	1.24	6.61	89	1.05	
1355	54	21.06	7.15	1.20	9.34	88	1.16	
1358	63	21.04	7.14	1.20	9.02	89	0.31	
1400	69	21.07	7.13	1.20	9.31	90	0.54	
1402	75	—	Took Primary Samples				—	
1408	93	—	took duplicate Sample				—	
1410	99	—	End Sampling					

Average Purge Rate: 3 gpm

Total Time: 33 min

Laboratory Analysis: VOCs (X) Metals Filtered (X) General chemistry ( ) Gross Alpha/Beta (X) Nitrite ( )
Other

Total number of bottles: 8

Comments:

QC Sample Collected? Yes (✓) No ( ) If YES, then type of sample and sample ID: (Dup) 02NEW7-323

QA Check

Field Member	Date	Initials
Sample Collector	3/16/06	DGL
Sample Coordinator	3/20/06	GMM

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG	
PROJECT NO.: 6218-084 Round 23	SAMPLE LOCATION: 04_DGMW66A
PROJECT NAME: MCAS El Toro	SAMPLE ID: 04_DGMW66A+123
DATE: 3/16/06	SAMPLED BY: DL
EQUIPMENT DECONTAMINATED: YES	PURGE START TIME: 1054
PURGING METHOD: Submersible Pump	
Well Casing Diameter 4" ( ) 5" (X) 6" ( )	
: Total Volume Removed: 111 gal	

Well Total Depth		Original DTW			4"=0.66 / 5"=0.93 / 6"=1.5		Casing Volume		Purge Volume
235	-	201.97	=	33.03	x	=	30.72	X 3 casg vol.	= 92.15

Initial Groundwater Level: 201.97 Final Groundwater Level: 202.57

Actual Time	Volume Purged	Temperature	pH	Conductance (mS/cm)	Dissolved oxygen (mg/L)	ORP	Turbidity NTu	Description
1056	7	24.24	6.84	1.35	0.0	58	51.9	Part Cloudy
1100	21	24.48	6.89	1.28	0.0	52	84.7	↓
1104	35	25.63	6.91	1.40	0.0	31	9.52	Clear
1108	52	25.83	7.01	1.31	0.0	22	3.79	↓
1112	66	25.90	7.02	1.35	0.0	23	2.39	
1116	83	25.94	7.02	1.29	0.0	24	1.60	
1118	90	26.04	7.02	1.28	0.0	22	2.87	
1119	93.5	26.04	7.03	1.30	0.0	23	1.62	
1121	100.5	—	TOOK SAMPLES			—	—	=
1124	111.0	—	END SAMPLING			—	—	=

Average Purge Rate: 3.5 gpm Total Time: 30 MIN

Laboratory Analysis: VOCs (X) Metals Filtered (X) General chemistry ( ) Gross Alpha/Beta (X) Nitrite ( )
Other

Total number of bottles: 4 btls.

Comments:

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

QA Check

Field Member	Date	Initials
Sample Collector	3/16/06	DGL
Sample Coordinator	3/20/06	CMM

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG	
PROJECT NO.: **6218-084 Round 23**	SAMPLE LOCATION: 05_DGMW68A
PROJECT NAME: **MCAS El Toro**	SAMPLE ID: 05_DGMW68A-123
DATE: 3/16/06	SAMPLED BY: DL
EQUIPMENT DECONTAMINATED: YES	PURGE START TIME: 0855

PURGING METHOD: Submersible Pump

Well Casing Diameter 4" (✓) 5" ( ) 6" ( )

: Total Volume Removed: 84 gal.

Well Total Depth		Original DTW			4"=0.66 5"=0.93 6"=1.5	Casing Volume		Purge Volume
192	-	165.32	=	20.68	x	= 17.6	X 3 casg vol.	= 52.83

Initial Groundwater Level: 165.32 | Final Groundwater Level: 165.31

Actual Time	Volume Purged	Temperature	pH	Conductance (mS/cm)	Dissolved oxygen (mg/L)	ORP	Turbidity NTu	Description
0900	17.5	23.14	7.02	0.946	7.26	174	117.12	Part Clear
0903	28.0	23.14	7.09	0.937	7.43	166	45.62	↓
0905	35.0	23.14	7.18	0.890	7.51	150	32.10	↓
0908	45.5	23.13	7.19	0.882	7.52	145	20.13	Clear
0912	56.0	23.14	7.20	0.899	7.49	142	9.71	↓
0913	59.5	23.14	7.20	0.899	7.48	141	3.20	↓
0915	66.5	23.17	7.20	0.893	7.49	140	3.31	↓
0917	73.5	took	samples		—		—	—
0920	84.0		end	sampling	—		—	—

Average Purge Rate: 3.5 gpm | Total Time: 25 min

Laboratory Analysis: VOCs (X) Metals Filtered (✓) General chemistry ( ) Gross Alpha/Beta (X) Nitrite ( )
Other

Total number of bottles: 4

Comments:

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

QA Check

Field Member	Date	Initials
Sample Collector	3/16/06	DGL
Sample Coordinator	3/20/06	CMM

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6218-084 Round 23	SAMPLE LOCATION: 05-DBMW41A
PROJECT NAME: MCAS El Toro	SAMPLE ID: 05-DBMW41A-123
DATE: 3/15/06	SAMPLED BY: DL
EQUIPMENT DECONTAMINATED: YES	PURGE START TIME: 1522

PURGING METHOD: Submersible Pump

Well Casing Diameter 4" (X) 5" ( ) 6" ( )

: Total Volume Removed: 107.5

Well Total Depth		Original DTW				4"=0.66 5"=0.93 6"=1.5		Casing Volume		Purge Volume
190	-	161.11	=	28.89	x		=	19.07	X 3 casg vol.	= 57.20

Initial Groundwater Level: 161.11

Final Groundwater Level: 161.52

Actual Time	Volume Purged	Temperature	pH	Conductance (mS/cm)	Dissolved oxygen (mg/L)	ORP	Turbidity NTu	Description
1525	10.5	21.86	7.00	1.16	7.34	154	14.4	Clear
1528	21.0	22.06	6.89	1.14	6.93	152	4.59	
1532	35.0	22.28	6.88	1.10	6.91	146	7.94	
1534	42.0	22.25	6.94	1.09	6.86	141	2.51	
1536	49.0	22.24	6.97	1.07	7.04	134	2.80	
1538	56.0	22.30	6.90	1.04	6.94	129	1.58	
1540	63.0	22.33	7.13	1.02	7.05	126	1.42	
1542	70.0	22.36	7.14	1.02	6.98	126	0.80	
1548	91.0	—	Took Samples					—
1557	107.5	—	END Sampling					—

Average Purge Rate: 3.5 gpm

Total Time: 35 min

Laboratory Analysis: VOCs (X) Metals Filtered (X) General chemistry ( ) Gross Alpha/Beta (X) Nitrite ( )
Other______

Total number of bottles: 4

Comments:

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

QA Check

Field Member	Date	Initials
Sample Collector	3/15/06	DGZ
Sample Coordinator	3/20/06	CMM

3.5
5
/5

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6218-084 Round 23	SAMPLE LOCATION: 03_DGMW64A
PROJECT NAME: MCAS El Toro	SAMPLE ID: 03_DGMW64A-123
DATE: 3/15/06	SAMPLED BY: DL
EQUIPMENT DECONTAMINATED: YES	PURGE START TIME: 1030

PURGING METHOD: Submersible Pump

Well Casing Diameter 4" ( ) 5" (X) 6" ( )

: Total Volume Removed: 120 gal

Well Total Depth		Original DTW			4"=0.66 5"=0.93 6"=1.5	Casing Volume		Purge Volume
255	-	220.67	=	34.33	x	= 31.93	X 3 casg vol.	= 95.7

Initial Groundwater Level: 220.67

Final Groundwater Level: 221.32

Actual Time	Volume Purged	Temperature	pH	Conductance (mS/cm)	Dissolved oxygen (mg/L)	ORP	Turbidity NTu	Description
1033	15	24.28	7.18	1.28	13.55	82	205	CLOUDY
1035	25	24.55	7.31	1.26	13.93	78	113	↓
1038	40	24.65	7.33	1.23	13.82	85	73.1	↓
1040	50	24.71	7.34	1.19	14.20	86	50.7	↓
1043	65	24.88	7.35	1.21	13.79	86	39.8	PART CLOUDY
1045	75	24.88	7.36	1.11	13.99	89	31.2	↓
1047	85	24.93	7.36	1.17	13.50	91	26.6	↓
1049	95	24.91	7.37	1.19	14.22	94	24.7	↓
1050	100	—	TOOK	SAMPLES		—	—	—
1054	120	→	END	SAMPLING		—	—	—

Average Purge Rate: 5 gpm   Total Time: 24 MIN

Laboratory Analysis: VOCs (X) Metals Filtered (X) General chemistry (X) Gross Alpha/Beta (X) Nitrite ( )
Other

Total number of bottles: 6

Comments:

QC Sample Collected? Yes (X) No (X) If YES, then type of sample and sample ID: ~~03_DGMW64A-323~~ DUC

QA Check

Field Member	Date	Initials
Sample Collector	3/15/06	DL
Sample Coordinator	3/20/06	CMM

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6218-084 Round 23	SAMPLE LOCATION: 03_DGMW65XA
PROJECT NAME: MCAS El Toro	SAMPLE ID: 03_DGMW65XA-123
DATE: 3/15/06	SAMPLED BY: DL
EQUIPMENT DECONTAMINATED: YES	PURGE START TIME: 1320

PURGING METHOD: Submersible Pump

Well Casing Diameter 4" ( ) 5" (X) 6" ( )

: Total Volume Removed: 120 gal

Well Total Depth		Original DTW				4"=0.66 5"=0.93 6"=1.5		Casing Volume		Purge Volume
248	-	213.79	=	34.21	x		=	31.82	X 3 casg vol. =	95.45

Initial Groundwater Level: 213.79 | Final Groundwater Level: 214.15

Actual Time	Volume Purged	Temperature	pH	Conductance (mS/cm)	Dissolved oxygen (mg/L)	ORP	Turbidity NTu	Description
1323	12	25.12	7.14	1.23	4.07	24	41.2	Part Cloudy
1326	24	25.14	7.12	1.26	3.99	25	30.6	↓
1330	40	25.18	7.13	1.26	4.23	31	28.7	↓
1334	56	25.25	7.18	1.26	4.65	34	7.02	Clear
1337	68	25.25	7.21	1.26	4.82	38	6.32	↓
1340	80	25.24	7.26	1.21	4.96	38	4.35	↓
1343	92	25.29	7.29	1.20	5.04	41	5.95	↓
1345	100	TOOK	SAMPLES		—			—
1348	112	TOOK	DUPLICATE		SAMPLES		—	—
1350	120	END SAMPLING			—			—

Average Purge Rate: 4 gpm | Total Time: 30 min

Laboratory Analysis: VOCs (X) Metals Filtered (X) General chemistry (X) Gross Alpha/Beta (X) Nitrite ( )
Other__________

Total number of bottles: 10 btls.

Comments:

QC Sample Collected? Yes (X) No ( ) If YES, then type of sample and sample ID: (Dup) 03_DGMW65XA-323

QA Check

Field Member	Date	Initials
Sample Collector	3/15/06	DGL
Sample Coordinator	3/20/06	CMM

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6218-084 Round 23	SAMPLE LOCATION: ~~0~~ 17_DGMW82
PROJECT NAME: MCAS El Toro	SAMPLE ID: 17-DGMW82-123
DATE: 3/22/06	SAMPLED BY: A. Neigh, C. Moss
EQUIPMENT DECONTAMINATED: YES	PURGE START TIME: 1238

PURGING METHOD: Micropurge Dedicated Bladder Pump

SAMPLING EQUIPMENT: QED MP20 Flow cell, MP30 compressor, MP10H Controller, MP20 Lamotte 2020 Turbidity Meter

Pump Intake Depth: —	Purge Rate: 100 milliliters/minute	Minimum Purge Volume: 2637
Total Volume Removed: 3630ml	Controller Settings: Refill: 18 Discharge: 12 Pressure: 115	
Initial Groundwater Level: 179.85'	Controller Adjustment: * 31 29 100	
Final Groundwater Level: 179.90'	Controller Adjustment:	

Actual Time	Volume Purged mL	Temperature °C	pH	Conductance (ms/cm)	Dissolved oxygen mg/L	ORP	Turbidity NTu	Static Water Level	Description
1242	400mL	22.55	7.44	0.954	6.41	103	5.22	—	clear
1245	700mL	21.74	7.40	0.955	5.86	103	4.11	—	clear
1247	900ml	21.87	7.38	0.957	5.63	104	4.11	179.87	clear
1249	1100mL	22.03	7.37	0.956	5.26	105	3.70	—	clear
1252	1400mL	22.19	7.32	0.955	4.28	106	3.42	179.87	clear
1255	1700mL	22.35	7.29	0.955	3.40	106	3.89	—	clear
1258	2000mL	22.29	7.28	0.953	2.92	106	5.27	179.89	clear
1300	2200mL	22.40	7.27	0.952	2.77	106	6.63	—	clear
1303	2500mL	22.50	7.27	0.952	2.43	104	6.28	179.89	clear
1305	2700mL	22.65	7.27	0.952	2.24	104	3.55	—	clear
1306	2800mL		Start Sampling						
1322	3630		End Sampling					3/22/06	

Stopped sampling because lost pressure

Total Volume Purged: 2800mL Total Time:

Laboratory Analysis: VOCs (X) Metals Filtered (X) General chemistry (X) Gross Alpha/Beta ( ) Nitrite ( )
Other

Total number of bottles: 4

Comments: metals were not filtered in the field & will need to be filtered in the lab

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

didn't have enuf volume to fill 500 ml Metals & 3/4 of L for Gen C.

* Adjusted discharge to try and get H_2O b/c stopped discharging (compressor vents @ 120 PSI) This pump & lines should be replaced BA next round. Same thing happened last round. ded.
—CM

QA Check

Field Member	Date	Initials
Sample Collector	3/22/06	AMN
Sample Coordinator	3/24/06	CM

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: **6218-084 Round 23**	SAMPLE LOCATION: 0ZNEW16
PROJECT NAME: **MCAS El Toro**	SAMPLE ID: 0ZNEW16-123
DATE: 3/22/06	SAMPLED BY: A. Neigh, C. Moss
EQUIPMENT DECONTAMINATED: **YES**	PURGE START TIME: 0958

PURGING METHOD: **Micropurge Dedicated Bladder Pump**

SAMPLING EQUIPMENT: **QED MP20 Flow cell, MP30 compressor, MP10H Controller, MP20 Lamotte 2020 Turbidity Meter**

Pump Intake Depth: —	Purge Rate: ~~100 milliliters/minute~~ 75mL/min.			Minimum Purge Volume: 1126
Total Volume Removed: 3950mL	Controller Settings:	Refill: 18	Discharge: 2	Pressure: 45
Initial Groundwater Level: 42.45'	Controller Adjustment:	17	3	AN ~~40~~ 30
Final Groundwater Level: 42.50	Controller Adjustment:	—	—	—

Actual Time	Volume Purged mL	Temperature °C	pH	Conductance (ms/cm)	Dissolved oxygen mg/L	ORP	Turbidity NTu	Static Water Level	Description
1002	300mL	18.70	7.20	1.103	5.47	111	1.30	—	clear
1006	600mL	19.15	7.22	1.094	5.17	118	0.76	42.45	clear
1008	750mL	19.25	7.23	1.095	5.23	120	0.97	—	clear
1010	900mL	19.29	7.23	1.096	5.08	122	2.83	42.49	clear
1014	1200mL	19.61	7.24	1.097	5.05	125	4.13	—	clear
1016	1350mL		Start Sampling						
1042	3950mL		End Sampling						

Total Volume Purged: 1350mL   Total Time: 44min

Laboratory Analysis: VOCs (X) Metals Filtered (X) General chemistry (X) Gross Alpha/Beta (X) Nitrite ( )

Other

Total number of bottles: 5

Comments: metals were not field filtered - filtering must be done in the lab

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

QA Check

Field Member	Date	Initials
Sample Collector	3/22/06	AMN
Sample Coordinator	3/24/06	CM

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG	
PROJECT NO.: 6218-084 Round 23	SAMPLE LOCATION: 02NEW15
PROJECT NAME: MCAS El Toro	SAMPLE ID: 02NEW15-123
DATE: 3/22/06	SAMPLED BY: A. Neigh, C. Moss
EQUIPMENT DECONTAMINATED: YES	PURGE START TIME: 0900
PURGING METHOD: Micropurge Dedicated Bladder Pump	
SAMPLING EQUIPMENT: QED MP20 Flow cell, MP30 compressor, MP10H Controller, MP20 Lamotte 2020 Turbidity Meter	

Pump Intake Depth: —	Purge Rate: ~~100 milliliters/minute~~ 75mL/min.			Minimum Purge Volume:
Total Volume Removed: 1875mL	Controller Settings: Refill: 18	Discharge: 2	Pressure: 40	
Initial Groundwater Level: ~~X~~ AN 30.32	Controller Adjustment: 18	2	30	
Final Groundwater Level: 30.37'	Controller Adjustment: —	—	—	

Actual Time	Volume Purged mL	Temperature °C	pH	Conductance (ms/cm)	Dissolved oxygen mg/L	ORP	Turbidity NTu	Static Water Level	Description
0904	300mL	18.58	7.10	1.105	5.65	154	~~4.1~~ 6.74 AN	—	clear
0908	600mL	18.95	7.15	1.177	5.07	155	5.16	—	clear
0910	750mL	18.88	7.15	1.234	5.25	156	6.97	30.35	clear
0914	1050mL	18.60	7.16	1.252	5.12	157	4.24	—	clear
0916	1200mL	18.52	7.15	1.255	5.61	158	1.97	30.37	clear
0917	1275mL	Start Sampling							
0933	1875mL	End Sampling							

3/22/06

Total Volume Purged: 1275mL | Total Time: 33min.

Laboratory Analysis: VOCs (X) Metals Filtered (X) General chemistry ( ) Gross Alpha/Beta (X) Nitrite ( )
Other

Total number of bottles: 4

Comments: ~~metals were not filtered in the~~ AN
metals filtered in field

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

QA Check

Field Member	Date	Initials
Sample Collector	3/22/06	AMN
Sample Coordinator	3/24/06	cm

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6218-084 Round 23	SAMPLE LOCATION: 02NEW8A
PROJECT NAME: MCAS El Toro	SAMPLE ID: 02NEW8A-~~122~~ AN 123
DATE: 3/16/06	SAMPLED BY: A. Neigh, C. Moss
EQUIPMENT DECONTAMINATED: YES	PURGE START TIME: 11:48

PURGING METHOD: Micropurge Dedicated Bladder Pump

SAMPLING EQUIPMENT: QED MP20 Flow cell, MP30 compressor, MP10H Controller, MP20
Lamotte 2020 Turbidity Meter

Pump Intake Depth: —	Purge Rate: 100 milliliters/minute	Minimum Purge Volume: 1266
Total Volume Removed: 2600mL	Controller Settings: Refill: 16 Discharge: 4 Pressure: 60	
Initial Groundwater Level: 48.36	Controller Adjustment: 16 4 50	
Final Groundwater Level: 48.36	Controller Adjustment:	

Actual Time	Volume Purged mL	Temperature °C	pH	Conductance (ms/cm)	Dissolved oxygen mg/L	ORP mV	Turbidity NTu	Static Water Level	Description
11:51	300mL	22.90	7.36	0.796	6.96	89	2.2		clear
11:53	500mL	22.85	7.22	0.817	6.08	88	1.6	48.38	clear
11:56	800mL	22.65	7.13	0.858	4.86	84	1.4		clear
11:59	1100mL	22.71	7.11	0.861	4.23	83	1.5	48.38	clear
12:01	1300mL	22.58	7.10	0.863	4.27	81	1.3		clear
12:03	1500mL	Start Sampling							
12:14	2600mL	Stop Sampling							

3/16/06

Total Volume Purged: 1500mL Total Time: 26min.

Laboratory Analysis: VOCs (X) Metals Filtered (X) General chemistry ( ) Gross Alpha/Beta (X) Nitrite ( )
Other

Total number of bottles: 4

Comments:

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

QA Check

Field Member	Date	Initials
Sample Collector	3/16/06	AN
Sample Coordinator	3/20/06	CMM

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: **6218-084 Round 23**	SAMPLE LOCATION: 01_MW201
PROJECT NAME: **MCAS El Toro**	SAMPLE ID: 01_MW201-~~122~~ AN 123
DATE: 3/16/06	SAMPLED BY: A. Neigh + C. Moss
EQUIPMENT DECONTAMINATED: **YES**	PURGE START TIME: 10:37

PURGING METHOD: **Micropurge Dedicated Bladder Pump**

SAMPLING EQUIPMENT: **QED MP20 Flow cell, MP30 compressor, MP10H Controller, MP20 Lamotte 2020 Turbidity Meter**

Pump Intake Depth: —	Purge Rate: **100 milliliters/minute**	Minimum Purge Volume: 901
Total Volume Removed: 1900mL	Controller Settings: Refill: 17 Discharge: 3 Pressure: 98	
Initial Groundwater Level: 39.17	Controller Adjustment: 17 3 30	
Final Groundwater Level:	Controller Adjustment:	

Actual Time	Volume Purged mL	Temperature °C	pH	Conductance (ms/cm)	Dissolved oxygen mg/L	ORP mV	Turbidity NTu	Static Water Level	Description
10:41	400mL	~~71.3~~ AMN		~~0.574~~ AMN	Stop Purge to adjust instrument				
10:45									Start Purge
10:47	600mL	21.80	7.73	0.576	6.87	146	0.0		clear
10:49	800mL	21.84	7.74	0.576	6.79	145	0.45	39.19	"
10:51	1000mL	21.84	7.75	0.575	6.62	143	0.50		"
10:53	1200mL	21.99	7.76	0.576	7.02	141	0.15	39.20	"
10:54	1300mL	Start Sampling							"
11:00	1900mL	Stop Sampling						39.20	"

3/16/06

Total Volume Purged: 1300 mL | Total Time: 23 min.

Laboratory Analysis: VOCs (X) Metals Filtered ( ) General chemistry ( ) Gross Alpha/Beta ( ) Nitrite ( )
Other Perchlorates

Total number of bottles: 4

Comments:

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

QA Check

Field Member	Date	Initials
Sample Collector	3/16/06	AMN
Sample Coordinator	3/20/06	Cmm

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6218-084 Round 23	SAMPLE LOCATION: 04_UGMW63
PROJECT NAME: MCAS El Toro	SAMPLE ID: 04UGMW63-123
DATE: 3/16/06	SAMPLED BY: A. Neigh, C. Most
EQUIPMENT DECONTAMINATED: YES	PURGE START TIME: 1320

PURGING METHOD: Micropurge Dedicated Bladder Pump

SAMPLING EQUIPMENT: QED MP20 Flow cell, MP30 compressor, MP10H Controller, MP20 Lamotte 2020 Turbidity Meter

Pump Intake Depth: —	Purge Rate: 100 milliliters/minute	Minimum Purge Volume: 3790
Total Volume Removed: 4700 mL	Controller Settings: Refill: 10 Discharge: 20 Pressure: 120	
Initial Groundwater Level: 199.30	Controller Adjustment: 8 22 120	
Final Groundwater Level: 199.31	Controller Adjustment: — — —	

Actual Time	Volume Purged mL	Temperature °C	pH	Conductance (ms/cm)	Dissolved oxygen mg/L	ORP mV	Turbidity NTu	Static Water Level	Description
1325	300 mL	22.82	7.98	1.289	8.62	32	13	199.30	
13:28	600 mL	23.02	7.48	1.375	7.62	34	9.5	—	Fe bits, clear
1331	900 mL	22.94	7.15	1.402	5.11	40	38	—	cloudy, Fe bits
1334	1200	23.09	7.14	1.404	5.15	39	55	199.30	"
1337	1500	22.96	7.11	1.407	3.54	41	75	199.31	"
1340	1800	23.13	7.09	1.404	2.91	42	90	—	yellow
1343	2100	23.27	7.09	1.410	2.56	43	95	—	yellow
1346	2400	23.04	7.09	1.410	2.57	42	96	—	yellow
1349	2700	22.88	7.10	1.410	2.44	41	80	—	yellow
1352	3000	22.75	7.09	1.407	2.45	41	70	199.31	yellow
1401	3900	— Sample							
1419	4700	— End							

Total Volume Purged: 3900 ml | Total Time: 59 min.

Laboratory Analysis: VOCs (X) Metals Filtered (X) General chemistry ( ) Gross Alpha/Beta (X) Nitrite ( )
Other

Total number of bottles: 4

Comments:

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

QA Check

Field Member	Date	Initials
Sample Collector	3/16/06	AN
Sample Coordinator	3/20/06	cmm

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6218-084 Round 23	SAMPLE LOCATION: 04-DBMW40
PROJECT NAME: MCAS El Toro	SAMPLE ID: 04-DBMW40-123
DATE: 3-17-06	SAMPLED BY: A. Neigh, C. Moss
EQUIPMENT DECONTAMINATED: YES	PURGE START TIME: 10:24

PURGING METHOD: Micropurge Dedicated Bladder Pump

SAMPLING EQUIPMENT: QED MP20 Flow cell, MP30 compressor, MP10H Controller, MP20
Lamotte 2020 Turbidity Meter

Pump Intake Depth: —	Purge Rate: 100 milliliters/minute	Minimum Purge Volume: 2650
Total Volume Removed: 4400mL	Controller Settings: Refill: 17 Discharge: 3 Pressure: 115	
Initial Groundwater Level: 199.84	Controller Adjustment: 12 8 115	
Final Groundwater Level: 199.89	Controller Adjustment:	

Actual Time	Volume Purged mL	Temperature °C	pH	Conductance (ms/cm)	Dissolved oxygen mg/L	ORP	Turbidity NTu*	Static Water Level	Description
10:29	500mL	20.58	7.86	1.333	6.71	11	0.00	—	clear
10:32	800mL	21.25	7.54	1.348	5.04	13	0.00	199.89	
10:35	1100mL	21.49	7.39	1.351	3.69	13	—	—	
10:38	1400mL	21.59	7.33	1.356	2.88	11	—	199.89	
10:41	1700mL	21.62	7.31	1.362	2.48	9	9.7	—	clear
10:44	2000mL	21.55	7.29	1.371	2.34	8	8.6	199.89	clear
10:47	2300mL	21.66	7.29	1.378	2.21	6	8.6	—	clear
10:49	2500mL	21.66	7.28	1.379	2.17	5	6.3	—	clear
10:51	2700mL	21.63	7.27	1.375	2.17	5	8.1	199.89	clear
10:52	2800mL	Start Sampling							
11:08	4400mL	End Sampling							

Total Volume Purged: ~~2800mL~~ 2800mL AN | Total Time: 44 min.

Laboratory Analysis: VOCs (X) Metals Filtered (X) General chemistry ( ) Gross Alpha/Beta (X) Nitrite ( )
Other

Total number of bottles: 4

Comments: *Turbidity meter was not working properly. See notebook for additional details.

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

QA Check

Field Member	Date	Initials
Sample Collector	3/17/06	AMN
Sample Coordinator	3/20/06	amm

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6218-084 Round 23	SAMPLE LOCATION: 05NEW1
PROJECT NAME: MCAS El Toro	SAMPLE ID: 05NEW1-~~T22~~ 123
DATE: 3-17-06	SAMPLED BY: A. Neigh, C. Moss
EQUIPMENT DECONTAMINATED: YES	PURGE START TIME: 8:06

PURGING METHOD: Micropurge Dedicated Bladder Pump

SAMPLING EQUIPMENT: QED MP20 Flow cell, MP30 compressor, MP10H Controller, MP20 Lamotte 2020 Turbidity Meter

Pump Intake Depth: —	Purge Rate: 100 milliliters/minute		Minimum Purge Volume: 2110
Total Volume Removed: 4000 mL	Controller Settings: Refill: 11	Discharge: 9	Pressure: 80
Initial Groundwater Level: 161.76'	Controller Adjustment: 12	8	90
Final Groundwater Level: 161.83'	Controller Adjustment:		

Actual Time	Volume Purged mL	Temperature °C	pH	Conductance (ms/cm)	Dissolved oxygen mg/L	ORP mV	Turbidity NTu	Static Water Level	Description
8:10	400mL	20.16	7.45	1.137	7.89	-15	1.9	—	clear
8:13	700mL	20.24	7.25	1.145	8.27	-11	2.6	161.80	clear
8:16	1000mL	20.25	7.17	1.144	8.65	-5	7.5	—	clear
8:18	1200mL	20.55	7.13	1.143	8.80	-2	8.7	161.83	clear
8:21	1500mL	20.22	7.09	1.142	8.74	5	8.9	—	clear
8:23	1700mL	20.06	7.08	1.142	8.63	7	9.6	161.81	clear
8:26	2000mL	19.97	7.07	1.141	8.47	10	7.7	—	clear
8:28	2200mL	19.82	7.05	1.141	8.50	13	5.8	161.81	clear
8:30	2400mL	Start Sampling							
8:56	4000mL	End Sampling							
								3-17-06	

Total Volume Purged: 2400mL Total Time: 50min.

Laboratory Analysis: VOCs (X) Metals Filtered (X) General chemistry (X) Gross Alpha/Beta (X) Nitrite ( )

Other: See COC

Total number of bottles: 5

Comments:

QC Sample Collected? Yes ~~(X)~~ AN No (X) If YES, then type of sample and sample ID: AN ~~05NEW1-323~~

QA Check 3/17/06

Field Member	Date	Initials
Sample Collector	3/16/06	AMN
Sample Coordinator	3/20/06	amn

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6218-084 Round 23	SAMPLE LOCATION: 05_DGMW67A
PROJECT NAME: MCAS El Toro	SAMPLE ID: 05_DGMW67A-123
DATE: 3-17-06	SAMPLED BY: A. Neigh, C. Moss
EQUIPMENT DECONTAMINATED: YES	PURGE START TIME: 9:12

PURGING METHOD: Micropurge Dedicated Bladder Pump

SAMPLING EQUIPMENT: QED MP20 Flow cell, MP30 compressor, MP10H Controller, MP20 Lamotte 2020 Turbidity Meter

Pump Intake Depth: —	Purge Rate: 100 milliliters/minute	Minimum Purge Volume: 2200mL
Total Volume Removed: 4900mL	Controller Settings: Refill: 10 Discharge: 10 Pressure: 90	
Initial Groundwater Level: 163.24	Controller Adjustment: 11 9 100	
Final Groundwater Level: 163.25	Controller Adjustment: — — —	

Actual Time	Volume Purged mL	Temperature °C	pH	Conductance (ms/cm)	Dissolved oxygen mg/L	ORP	Turbidity NTu	Static Water Level	Description
9:16	400mL	19.35	8.37	0.945	8.05	16	0.00	—	some large particulates
9:18	600mL	20.43	8.18	0.960	7.72	17	0.00	163.24	clear
9:21	900mL	20.28	7.69	1.014	7.20	23	0.00	—	clear
9:24	1200mL	20.14	7.44	1.054	6.62	25	0.00	—	clear
9:27	1500mL	19.98	7.34	1.071	6.13	28	0.00	163.25	clear
9:30	1800mL	20.12	7.28	1.082	5.61	30	0.00	—	clear
9:32	2000mL	19.89	7.26	1.085	5.38	30	0.00	—	clear
9:34	2200mL	19.83	7.24	1.085	5.37	31	0.00	163.25	clear
9:35	2300mL	Start Sampling							
9:49	4900mL	End Sampling							

3-17-06

Total Volume Purged: 2300mL   Total Time: 37min.

Laboratory Analysis: VOCs (X) Metals Filtered (X) General chemistry (X) Gross Alpha/Beta (X) Nitrite ( )
Other

Total number of bottles: 5

Comments:

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

QA Check

Field Member	Date	Initials
Sample Collector	3/17/06	AMN
Sample Coordinator	3/20/06	CMM

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: 6218-084 Round 23	SAMPLE LOCATION: 17NEW1
PROJECT NAME: MCAS El Toro	SAMPLE ID: 17NEW1-123
DATE: 3/20/06	SAMPLED BY: A. Neigh
EQUIPMENT DECONTAMINATED: YES	PURGE START TIME: 1047

PURGING METHOD: Micropurge Dedicated Bladder Pump

SAMPLING EQUIPMENT: QED MP20 Flow cell, MP30 compressor, MP10H Controller, MP20 Lamotte 2020 Turbidity Meter

Pump Intake Depth: —	Purge Rate: 100 milliliters/minute	Minimum Purge Volume: 2330
Total Volume Removed: 4000mL	Controller Settings: Refill: 18 Discharge: 12 Pressure: 90	
Initial Groundwater Level: 175.58'	Controller Adjustment: 20 10 100	
Final Groundwater Level: 175.71	Controller Adjustment: 23 7 100	

Actual Time	Volume Purged mL	Temperature °C	pH	Conductance (ms/cm)	Dissolved oxygen mg/L	ORP mV	Turbidity NTu	Static Water Level	Description
1052	500mL	20.95	8.11	0.820	5.41	234	34.8	—	clear
1055	800mL	21.05	7.72	0.850	5.20	232	25.9	—	clear
1058	1100mL	21.16	7.40	0.914	4.72	228	31.7	175.73*	clear
1101	1250mL	21.13	7.32	0.962	4.56	225	36.0	175.73	clear
1107	1550mL	20.88	7.24	1.033	3.95	217	51.9	175.73	hazier
1113	1850mL	20.23	7.20	1.093	5.00	209	61.9	175.72	"
1119	2150mL	20.73	7.20	1.116	4.68	200	53.1	175.71	"
1123	2350mL	20.74	7.20	1.126	4.53	195	51.8	175.71	"
1124	2400mL		Start	Sampling					
1147	4000mL		End	Sampling					
							3/20/06		

Total Volume Purged: 2400mL	Total Time: 60 min.

Laboratory Analysis: VOCs (X) Metals Filtered (X) General chemistry (X) Gross Alpha/Beta ( ) Nitrite ( )
Other

Total number of bottles: 4

Comments: *There appears to be some drawdown probably due to the sampling tube ~~being pinched during the first few pumps & more GW than expected coming out.~~ Reduced purge rate to 50mL/min.

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

QA Check

Field Member	Date	Initials
Sample Collector	3/20/06	AMN
Sample Coordinator	3/20/06	CMM

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG	
PROJECT NO.: 6218-084 Round 23	SAMPLE LOCATION: 02NEW11-~~123~~ AN
PROJECT NAME: MCAS El Toro	SAMPLE ID: 02NEW11-123
DATE: 3/21/06	SAMPLED BY: A. Neigh, C. Moss
EQUIPMENT DECONTAMINATED: YES	PURGE START TIME: 1515

PURGING METHOD: Micropurge Dedicated Bladder Pump

SAMPLING EQUIPMENT: QED MP20 Flow cell, MP30 compressor, MP10H Controller, MP20 Lamotte 2020 Turbidity Meter

Pump Intake Depth: —	Purge Rate: ~~100 milliliters/minute~~ 30mL/min.	Minimum Purge Volume: 890
Total Volume Removed: 2530mL	Controller Settings: Refill: 18 Discharge: 2 Pressure: 35	
Initial Groundwater Level: 30.26	Controller Adjustment: 17.5 2.5 35	
Final Groundwater Level: 30.28	Controller Adjustment:	

Actual Time	Volume Purged mL	Temperature °C	pH	Conductance (ms/cm)	Dissolved oxygen mg/L	ORP (mV)	Turbidity NTu	Static Water Level	Description
1520	150	17.92	7.22	1.155	4.79	144	1.66	30.26	clear
1525	300mL	18.76	7.22	1.134	3.51	145	3.29	—	clear
1530	450mL	18.99	7.23	1.130	3.26	146	4.10	30.28	clear
1535	600mL	18.96	7.25	1.130	3.20	146	4.78	—	clear
1540	750mL	18.88	7.25	1.136	3.14	145	— *	30.28	clear
1545	900mL	18.71	7.26	1.141	3.06	143	—		clear
1546	930mL		Start Sampling						
1556	2530mL		End Sampling						
								3/21/02	

Total Volume Purged: 930mL | Total Time: 41 min.

Laboratory Analysis: VOCs (X) Metals Filtered (X) General chemistry ( ) Gross Alpha/Beta (X) Nitrite ( )
Other

Total number of bottles: 4

Comments: * battery on turbidity meter ran out

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

QA Check

Field Member	Date	Initials
Sample Collector	3/21/06	AMN
Sample Coordinator	3/24/06	CM

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG

PROJECT NO.: **6218-084 Round 23**	SAMPLE LOCATION: 02_DGMW59
PROJECT NAME: **MCAS El Toro**	SAMPLE ID: 02-DGMW59-123
DATE: 3/21/06	SAMPLED BY: A. Neigh, C. Moss
EQUIPMENT DECONTAMINATED: **YES**	PURGE START TIME: 1020

PURGING METHOD: **Micropurge Dedicated Bladder Pump**

SAMPLING EQUIPMENT: **QED MP20 Flow cell, MP30 compressor, MP10H Controller, MP20 Lamotte 2020 Turbidity Meter**

Pump Intake Depth: —	Purge Rate: ~~100 milliliters/minute~~ 30mL/min	Minimum Purge Volume: 1126
Total Volume Removed: 6130mL	Controller Settings: Refill: 17 Discharge: 3 Pressure: 50	
Initial Groundwater Level: 53.21'	Controller Adjustment: 18 2 50	
Final Groundwater Level: 53.71'	Controller Adjustment: — — —	

Actual Time	Volume Purged mL	Temperature °C	pH	Conductance (ms/cm)	Dissolved oxygen mg/L	ORP mV	Turbidity NTu	Static Water Level	Description
1025	150mL	16.84	7.22	0.927	5.90	160	0.60	53.63	clear
1030	300mL	16.52	7.21	1.018	4.24	161	1.08	53.65	clear
1035	450mL	16.98	7.20	1.072	3.18	161	0.56	53.71	clear
1040	600mL	17.29	7.20	1.095	3.84	160	0.77	53.71	clear
1045	750mL	17.08	7.18	1.093	3.74	159	0.62	53.71	clear
1050	900mL	17.70	7.16	1.101	2.98	158	2.17	53.71	clear
1055	1050mL	17.76	7.19	1.098	2.84	157	1.43	53.71	clear
1100	1200mL	18.36	~~4.42~~ 7.19	1.104	4.42	155	0.27	53.71	clear
1101	1230mL		Start Sampling						
1134	6130mL		End Sampling						
								3/21/06	

Total Volume Purged: 1230 mL   Total Time: 74min.

Laboratory Analysis: VOCs (X) Metals Filtered (X) General chemistry ( ) Gross Alpha/Beta (X) Nitrite ( )
Other

Total number of bottles: 12

Comments:

QC Sample Collected? Yes (X) No ( ) If YES, then type of sample and sample ID: 02-DGMW59-123 MS/MSD

QA Check

Field Member	Date	Initials
Sample Collector	3/21/06	AMN
Sample Coordinator	3/24/06	CM

GROUNDWATER MONITORING WELL PURGING AND SAMPLING LOG	
PROJECT NO.: 6218-084 Round 23	SAMPLE LOCATION: 02NEW2
PROJECT NAME: MCAS El Toro	SAMPLE ID: 02NEW2-123
DATE: 3/22/06	SAMPLED BY: A. Neigh
EQUIPMENT DECONTAMINATED: YES	PURGE START TIME: 1105

PURGING METHOD: Micropurge Dedicated Bladder Pump

SAMPLING EQUIPMENT: QED MP20 Flow cell, MP30 compressor, MP10H Controller, MP20 Lamotte 2020 Turbidity Meter

Pump Intake Depth: —	Purge Rate: ~~100 milliliters/minute~~ 75mL/min	Minimum Purge Volume: 1180
Total Volume Removed: 1875mL	Controller Settings: Refill: 17 Discharge: 3 Pressure: 45	
Initial Groundwater Level: 68.06'	Controller Adjustment: — — —	
Final Groundwater Level: 68.07'	Controller Adjustment: — — —	

Actual Time	Volume Purged mL	Temperature °C	pH	Conductance (ms/cm)	Dissolved oxygen mg/L	ORP	Turbidity NTu	Static Water Level	Description
1109	300mL	20.58	7.73	1.069	6.90	112	0.06	—	clear
1111	450mL	20.39	7.40	1.107	5.65	115	1.77	68.06	clear
1115	750mL	20.43	7.33	1.105	4.69	118	1.91	—	clear
1117	900mL	20.37	7.29	1.104	4.18	121	1.45	68.06	clear
1121	1200mL	20.46	7.29	1.102	3.73	124	0.04	—	clear
1122	1275mL		Start Sampling						
1138	1875mL		End Sampling						
								3/22/06	

Total Volume Purged: 1275mL Total Time: 33min.

Laboratory Analysis: VOCs (X) Metals Filtered (X) General chemistry ( ) Gross Alpha/Beta (X) Nitrite ( )
Other

Total number of bottles: 4

Comments: metals were not field filtered and will have to be filtered in the lab

QC Sample Collected? Yes ( ) No (X) If YES, then type of sample and sample ID:

QA Check

Field Member	Date	Initials
Sample Collector	3/22/06	AMN
Sample Coordinator	3/24/06	CM